

The Effect of Resistive Mediums on the Propagation of Electromagnetic (EM) Wave

by

Mohamad Zulfadhli Bin Mohamad Idris

A project dissertation submitted in partial fulfillment of
the requirement for the
Bachelor of Engineering (Hons)
(Electrical & Electronic Engineering)

June 2010

Universiti Teknologi PETRONAS

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CERTIFICATION OF APPROVAL

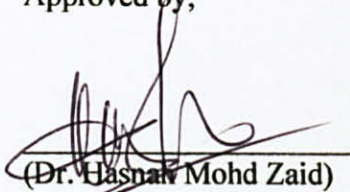
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Engineering Programme
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in partial fulfillment of the requirement for the
BACHELOR OF ENGINEERING (Hons)
(ELECTRICAL & ELECTRONIC ENGINEERING)

Approved by,



(Dr. Hasnaw Mohd Zaid)
Project Supervisor

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

June 2010

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



MOHAMAD ZULFADHLI BIN MOHAMAD IDRIS

ABSTRACT

This project is to investigate the effect of different resistivity of sediment which is an important aspect in SeaBed Logging (SBL). The SBL is an application of the Marine Controlled Source Electromagnetic (CSEM). Knowing the importance of increasing the accuracy of hydrocarbon detection activity, the CSEM method has been used for past seven years. SBL seems to have come up to expectations achieving what was hoped for but thought by many to be good to be true [1]. The central idea of SBL is the guiding of electromagnetic energy in thin resistive medium within conductive sediments [2]. Even though this technology has been discovered of long time ago, the applications are still not being used widely in oil and gas industry. This might be due to the uncertainty of getting any significant response from thin resistive layers such as hydrocarbon reservoirs since electromagnetic energy is highly attenuated in conductive sediments. This project were applied the same basic concept as in SBL and experiments using scaled tank were conducted. The data obtained from the experiments were analyzed. The data were collected by considering many perspectives and patterns in the real offshore structure. The results of this experiment were compared with the theoretical.

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LIST OF ABBREVIATION

Electromagnetic (EM)

Universiti Teknologi PETRONAS (UTP)

Fundamental & Applied Sciences Department (FASD)

Enhanced Oil Recovery (EOR)

Mission Oriented Research (MOR)

Final Year Project (FYP)

Transverse Electromagnetic (TEM)

Marine Controlled Source Electromagnetic (CSEM)

The Sea Bed Logging (SBL)

Hertz (Hz)

International System of Unit (SI)

Potassium Chloride (KCL)

Magnitude versus Offset (MVO)

Phase versus Offset (PVO)

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Electromagnetic (EM) imaging uses EM energy to detect resistive bodies, including hydrocarbon reservoirs, beneath the seabed. Comparing with seismic surveys, which use acoustic energy to locate promising geological structures, EM imaging can reveal the presence of commercial hydrocarbon reserves.

EM imaging can identify reservoirs before seismic surveys are conducted. Where seismic methods indicate the presence of a suitable structure, EM data dramatically improves confidence in ranking the prospect. An EM has the potential to find hydrocarbons in traps that cannot be detected using seismic methods and would be overlooked by conventional workflows [3]. This knowledge is applied in the Seabed Logging (SBL) method which the academia had setup experiment using scaled water tank. The data obtained were analysed with the real condition of hydrocarbon detection activity.

1.2 Problem Statement

The Seismic data can provide information about structure lithology and fluid content; however it cannot differentiate between a water reservoir and hydrocarbon reservoir.

1.3 Objective and Scope of Study

- a) To determine the effect of various resistive mediums on the propagation of EM wave.
- b) To validate that the effect of the resistive mediums on the EM Wave can be used to detect hydrocarbon reservoir in sediment.

1.4 Scope of the Project

The scope of study will involve the study about SBL technique which is currently still considered as a new method in oil and gas activities. It involves the knowledge of the properties of waves such understanding as the principle of Maxwell's equation, attenuation of wave when it passing through different medium and the refracted and reflected behaviour of waves. This project also needs the knowledge of communication because the antenna and EM detector are needed to get the reading of the wave.

Besides that, this project will require the knowledge of the EM properties of medium (seawater and sediments) which are described by the electric permittivity (ϵ), magnetic permeability (μ) and electric conductivity (σ).

1.4.1 Relevancy of the Project

Universiti Teknologi PETRONAS (UTP) is discovering this new technology for Oil and Gas research and development under the Fundamental & Applied Sciences Department (FASD). This project is an application of Enhanced Oil Recovery (EOR) under Mission Oriented Research (MOR).

1.4.2 Feasibility of the Project within the Scope and Time Frame

This project will start by collecting the reading material such as the books, journals, related website, discussion with supervisor and discussion with laboratory technician. During the range time for Final Year Project (FYP) 1, this project target's is to setup the scaled tank and start to collect the initial important data of the experiments. During the FYP 2 period, the target is to get more data and analysis for different condition of mediums, different frequencies, different antenna and detectors position.

CHAPTER 2

LITERATURE REVIEW

2.1 EM (EM) Waves

According to Maxwell, a magnetic field will be produced in empty space if there is a changing electric field. From this Maxwell derived another conclusion; if changing magnetic field produced an electric field, that electric field is itself changing [4]. This is how the derivation of EM wave which consist of Electric Field and Magnetic Field. The waves that propagate are known as transverse EM (TEM) waves- this means that the electrical wave are all mutually perpendicular [5].

During this project, it is very important to understand the properties of nature light which involve the EM. Firstly, the frequency of wave light is its rate of oscillation and measurement is in Hertz (Hz), the International System of Unit (SI) unit of frequency. The different frequencies undergo different angles of refraction and diffraction.

As waves cross boundaries of different media, their speed will change and however the frequency remains constant. The energy in EM waves is sometimes called radiant energy. The energy properties of EM show the EM radiation carries energy and momentum that may communicate to matter which it interacts. In the hydrocarbon detection activities, the propagated EM could pass through the resistive mediums which are soil, rock, sand, shale water, and sea water.

2.2 The Petroleum

The word *petroleum* comes from Greeks. *Petro* means rock, and *oleum* means oil [6]. It consist two materials which are crude oil and natural gas. Petroleum is a composition of Hydrogen, Carbon, Sulfur, Nitrogen and Oxygen. The combination of these molecules build a new composition called Hydrocarbon. The two major materials is Hydrogen (11-14%) and Carbon (84-87%) [6]. A hydrocarbon is a covalent chemical bonding. A composition built as a covalent has very strong bond between its elements (Carbon and Hydrogen), hence hydrocarbon it is a very high resistivity composition.

2.3 Sea Bed Logging

SBL is an application of Marine Controlled Source EM (CSEM) that used to directly detect and characterize possible hydrocarbon-bearing prospect [2]. This method becomes an important complementary tool to seismic exploration methods to evaluate and rank possible hydrocarbon bearing prospects.

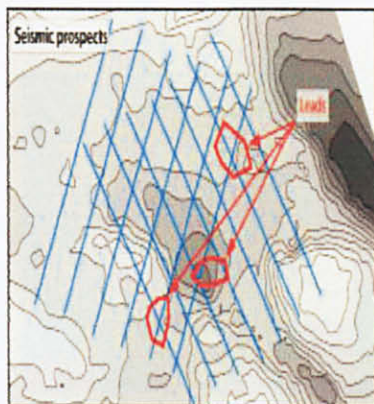


Figure 1: Seismic Prospect [7]

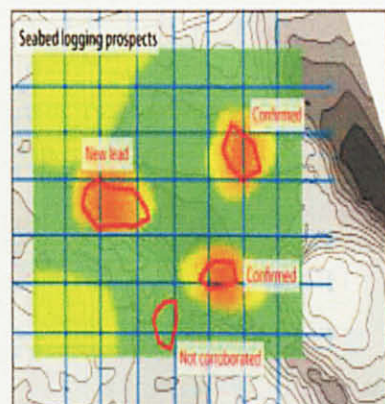


Figure 2: SBL Prospect [7]

The Sea Bed Logging (SBL) is based upon the fact that all geological media have some sort of electrical conductivity. The difference in conductivity between, for example, shale and sandstone which are common rocks in sedimentary basins the world over, is relatively small when they are saturated with saline water [1].

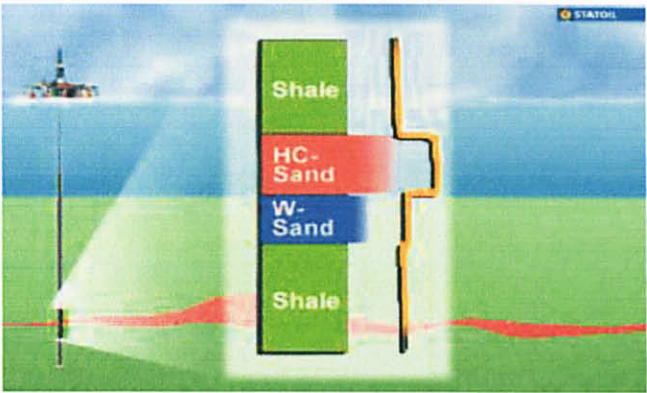


Figure 3: Section contains water-saturated (W) and hydrocarbon-saturated (HC) sediments [8]

An electric dipole antenna is used as source. The dipole emits a low-frequency signal into the surrounding media, and the signal is normally recorded by stationary seafloor receivers having both magnetic and electric dipole antennas [2].



Figure 4: EM Antenna [9]

2.3.1 SBL Technical Success Rates

Classification as a SBL technical success, in the case of discovery wells, means that the reservoir identified from the well data was correctly interpreted from the EM data. Rigorous EM depth conversion was not performed on the earliest survey data; for these cases, the criteria for a SBL technical success did not include the depth to the discovered hydrocarbon reservoir [3].

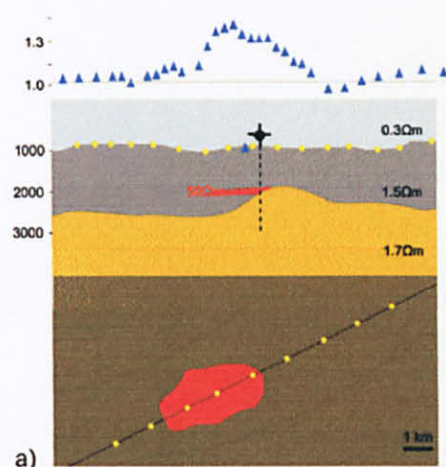


Figure 5: Hydrocarbon discovery

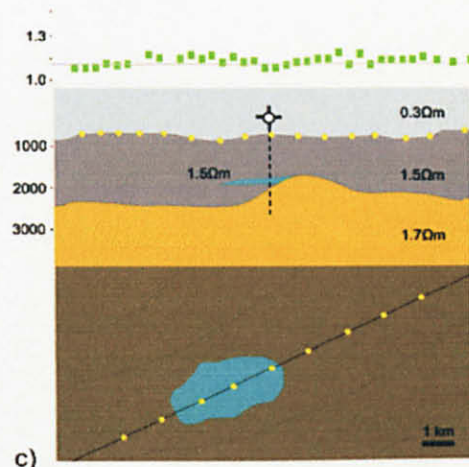


Figure 6: Dry Formations

The interpreted EM responses were classified into five groups according to the nature of the measured target:

- a) Hydrocarbon discoveries – wells revealed hydrocarbon filled Reservoirs
- b) Dry formations – no hydrocarbons detected [3]

Moreover, we have to consider the location of the possible hydrocarbon place. Each offshore location has different density or properties of its resistive medium. Hence this experimental result will be valid for few locations of offshore hydrocarbon detection activity. Currently the countries like Norway, Brazil and Malaysia are applying the method by EM Geoservices (EMGS). The different structure of hydrocarbon place will be considered by change the forces in the tank.

The analysis covered surveys with water depths from 250-2500 m and target depths from 200-2500 m. The wells were also geographically spread, from the Far East through India to the Mediterranean, West Africa, and Norway, and included a well in Brazil. However, no well data was made available for the Gulf of Mexico, despite several EM surveys in the region, or for surveys conducted in Australia or Canada [3].



Figure 7: Geographical location of the surveys used in the EMGS study [3]

In 2006, PETRONAS Carigali conducted a SBL survey in a block in Southeast Asia. The prospect area was in relatively shallow water (200-500 m) with rugged seabed topography and complex geology dominated by a faulted anticlinal structure, shallow carbonates, and a shallow basement. The primary target was expected to be near the crest of the basement anticline. These factors combined to make the dataset challenging to interpret [3].

2.4 Wavelength, Skin Depth and Phase Velocity

EM GeoServices (EMGS) studied on how these parameters will give significant information for this scaled tank experiment. They found the EM properties of a medium are described by the electric permittivity ϵ , magnetic permeability μ , and electric conductivity σ . Consider propagation of a time-harmonic plane wave with frequency f (angular frequency $\omega=2\pi f$). The propagation can be described in terms of a wave number:

$$k = \omega \sqrt{\mu\epsilon + i\mu/\omega} = \omega/c_p + i/\delta \dots(1)$$

The skin depth is a measure of how far the wave will penetrate into the medium. In the wave number expression, the first part inside the square root is related to the displacement currents in Maxwell's equations and the second part to conduction currents. Thus, it can be observed from Eq. (1) that the conduction current dominates the displacement current if $\sigma/\omega\epsilon \gg 1$. The frequency where the displacement current and conduction current contribute equally to the wave number ($\sigma/\omega\epsilon=1$), will be referred to as the critical frequency.

For water the relative electric permittivity is $\epsilon_r=80$. This means that for seawater with conductivity 5.2 S/m, the critical frequency is 1.2 GHz. For tap water with conductivity 0.013 S/m, the critical frequency is 3MHz. The displacement current can thus be ignored when considering field propagation in the seawater and tap water for the frequencies (in the kHz domain) used in the tank experiment. The wave number in Eq. (1) can thus be written as

$$k \approx (1 = i) \sqrt{\frac{\omega\mu\sigma}{2}} \dots(2)$$

From this approximation and the relation in Eq. (1), the skin depth, phase velocity, and wavelength λ for low-frequency propagation in conductive media become:

$$\delta \approx \sqrt{\frac{2}{\mu\sigma\omega}}, c_p \approx \sqrt{\frac{2\omega}{\mu\sigma}}, \lambda = \frac{2\pi c_p}{\omega} \approx 2\pi\delta \dots (3)$$

The skin depth, phase velocity, and wavelength for seawater and tap water for frequencies of 50 kHz, 100 kHz and 200 kHz are shown in Table 1.

Table 1: Skin depths, phase velocities, and wavelengths at 50 kHz, 100 kHz, and 200 kHz for seawater and tap water

f (kHz)	σ (S/m)	δ (m)	c_p (m/s)	λ (m)
50	5.200	0.99	3.10×10^5	6.20
50	0.013	19.73	6.20×10^6	123.96
100	5.200	0.70	4.38×10^5	4.38
100	0.013	13.95	8.77×10^6	87.65
200	5.200	0.49	6.20×10^5	3.01
200	0.013	9.86	1.24×10^7	61.98

2.5 Scale Model Calculation

The purpose of the experimental setup was to create a structure with a medium of low-loss material (hydrocarbon) surrounded in a medium with high loss (seawater). It was important that the distances and frequencies used in the tank experiment could be scaled up to realistic distances and frequencies that could be represented the real SBL survey.

The ratio of the full scale and the laboratory scale dimensions is

$$\frac{d_{fs}}{d_{lab}} = n$$

If

$$\left(\frac{\rho}{\mu f}\right)_{fs} = n^2 \left(\frac{\rho}{\mu f}\right)_{lab}$$

The full scale and the laboratory scale both generally concerned with nonmagnetic conductors $\mu = \mu_o$ the permeability of the free space, so that

$$\left(\frac{\rho}{f}\right)_{fs} = n^2 \left(\frac{\rho}{f}\right)_{lab}$$

For the frequency

$$\left(\frac{1}{f}\right)_{fs} = n^2 \left(\frac{1}{f}\right)_{lab}$$

$$n^2 f_{fs} = f_{lab}$$

If the scale factor is $n = 1500$

a. Wave length

If full scale frequency is 0.1 Hz

$$(1500)^2 (0.1 \text{ Hz}) = f_{lab}$$

$$225 \text{ KHz} = f_{lab}$$

$$\lambda = 2\pi \sqrt{\frac{2}{\mu \sigma \omega}}$$

$$\lambda = \sqrt{\frac{8\pi^2}{\mu \sigma \omega}}$$

$$\lambda = \sqrt{\frac{1}{10^{-7} \sigma f}}$$

For sea water conductivity is $\sigma = 5.2$

$$\lambda = \sqrt{\frac{1}{10^{-7} \times 5.2 \times 225 \times 10^3}}$$

$$= 2.92 \text{ m}$$

b. Skin Depth

If full scale frequency is 0.1 Hz

$$(1500)^2 (0.1 \text{ Hz}) = f_{lab}$$

$$225 \text{ KHz} = f_{lab}$$

$$\delta = \sqrt{\frac{2}{\mu \sigma \omega}}$$

$$\delta = \sqrt{\frac{1}{4\pi^2 \times 10^{-7} \sigma f}}$$

For sea water conductivity is $\sigma = 5.2$

$$\delta = \sqrt{\frac{1}{4\pi^2 \times 10^{-7} \times 5.2 \times 225 \times 10^3}}$$
$$= 0.46 \text{ m}$$

c. Phase Velocity

If full scale frequency is 0.1 Hz

$$(1500)^2 (0.1 \text{ Hz}) = f_{lab}$$

$$225 \text{ KHz} = f_{lab}$$

$$C_p = \sqrt{\frac{2\omega}{\mu \sigma}}$$

$$C_p = \sqrt{\frac{10^7 \times f}{\sigma}}$$

For sea water conductivity is $\sigma = 5.2$

$$C_p = \sqrt{\frac{10^7 \times 225 \times 10^3}{5.2}}$$
$$= 1.50 \times 10^6 \text{ m/s}$$

2.6 Theoretical Result

- The empirical data from the experiments will be collected and analyzed to see that the actual (empirical) analysis is consistent with the theoretical.
- The effects on the signal propagation when varying the conductivity, thickness, and depth of the resistive layer were investigated. Refer to Figure 8 below:

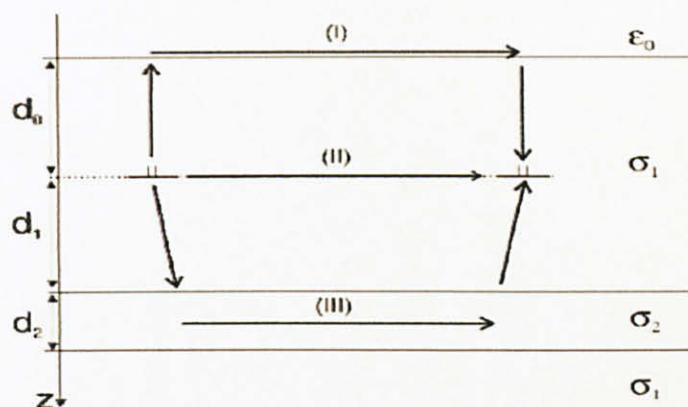


Figure 8: A sketch of the signal propagation. The contributions to the total response come from the sea-surface (I), direct field (II), and guiding (III) [2]

- With certain frequency the variation in response for different conductivities and thicknesses of the resistive layer was looked at separately. The effect of different resistivity was considered by modeling responses from shallow and deep configurations.

d. The resulting electric field components in the inline and broadside directions were studied. The results are shown in Figs. 14 and 15.

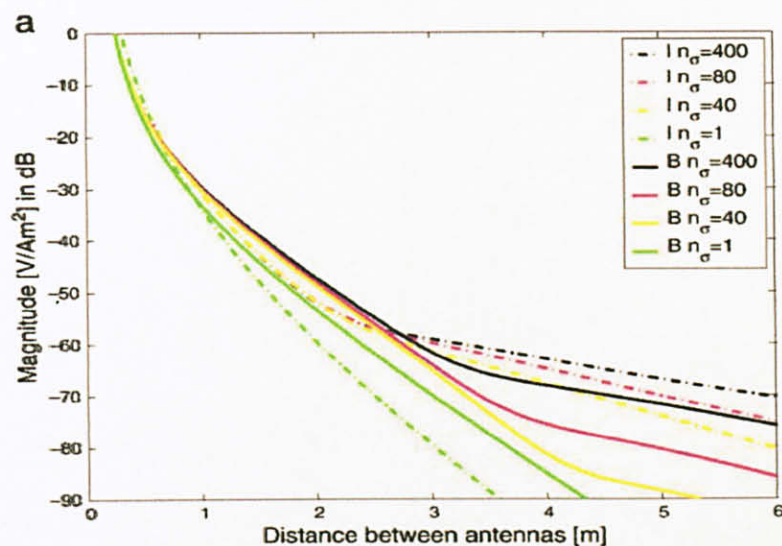


Figure 9: Magnitude versus Offset (MVO) and Phase Versus Offset (PVO) [2]

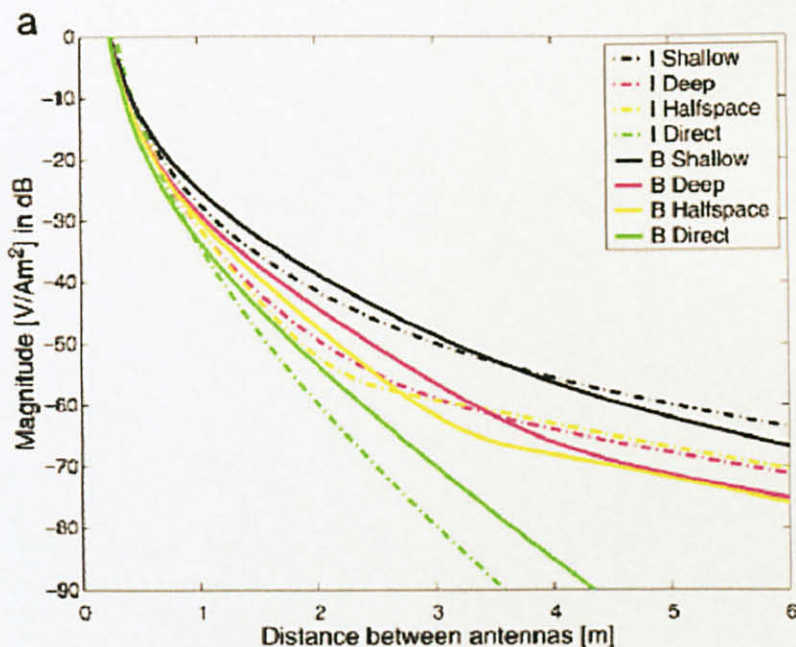


Figure 10: Magnitude response for various seawater depths at 100 kHz frequency [2]

2.7 EM (EM) Transmitter

Any communication system moves information from a source to a destination through a channel. A transmitter is an important element in communication. It must generate a signal with the right type of modulation, with sufficient power, at the right carrier frequency, and with reasonably efficiency. [9]

In this project, we are not going to emphasize on the transmitter. However, we have to choose the most suitable transmitters in order to get accurate and consistence results. We have to consider every environment of experiments before deciding which transmitter should be used such that the transmitter could propagate EM wave to the receiver sharply. After that, we have to use the chosen transmitter(s) for the project.



Figure 11: Straight Transmitter

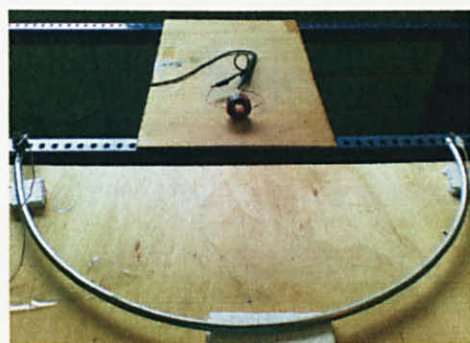


Figure 12: Curve Transmitter

2.8 Resistivity and Conductivity

Electrical resistivity is a measure of how strongly a material opposes the flow of electric current. It is also known as specific electrical resistance or volume resistivity. A low resistivity indicates a material that readily allows the movement of electrical charge. The SI unit of electrical resistivity is the ohm meter ($\Omega \text{ m}$).

The conductivity is inversely proportional to the resistivity. The conductivity of a material is a measure of how easily electrons can travel through the material under the influence of an external electric field [10]. The electrical conductivity of seawater is proportional to its salinity [11]. The salinity is ratio of the conductivity of standard Potassium Chloride (KCL) solution to the conductivity of the conductivity of seawater [12].

CHAPTER 3

PROPOSED PROJECT METHODOLOGY

3.1. Project activities Flow:

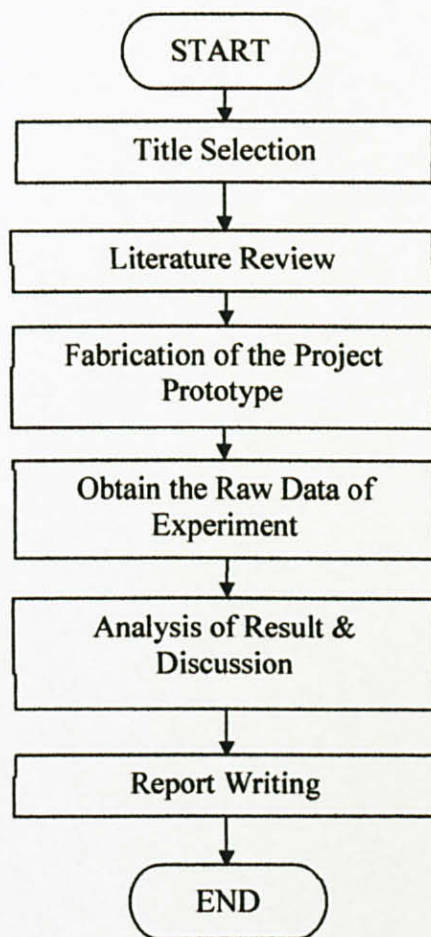
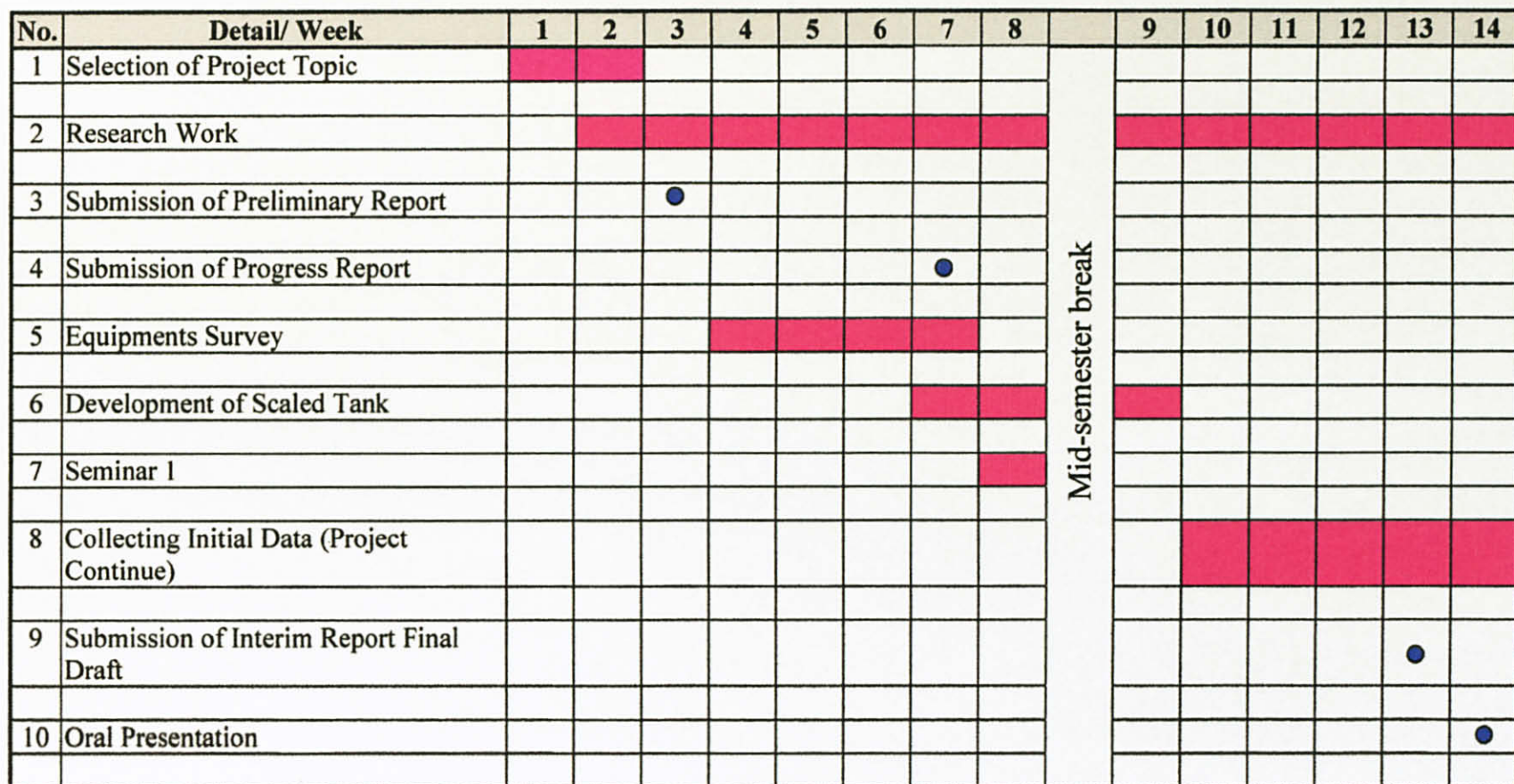


Figure 13: Project Activities Flow

3.2 The Milestone during FYP1

Table 2: Gantt Chart FYP1





● Suggested milestone
 ■ Process

3.3 The Milestone during FYP2

Table 3: Gantt Chart for FYP2

No.	Detail/ Week	1	2	3	4	5	6	7	8		9	10	11	12	13	14
1	Project Work Continue									Mid-semester break						
2	Submission of Progress Report 1															
3	Project Work Continue															
4	Submission of Progress Report 2															
5	Project Work Continue															
6	Submission of Draft Report									Mid-semester break						
6	Submission of Final Report															
7	Submission of Technical Report															
8	Oral Presentation															
9	Final Report															

 Suggested milestone
 Process

3.4 Scaled Tank Design

The scaled tank is fabricated by using the glass in order to support the high burden. The glass material is chosen since it was proved could support the burden and also transparent. The experimental setup consisted of large scaled tank which represents the actual condition of the offshore.



Figure 14: Designed Prototype

A conductive environment was created by filling the entire tank with seawater. A resistive layer was constructed by fitting waterbed mattress into wooden framework.

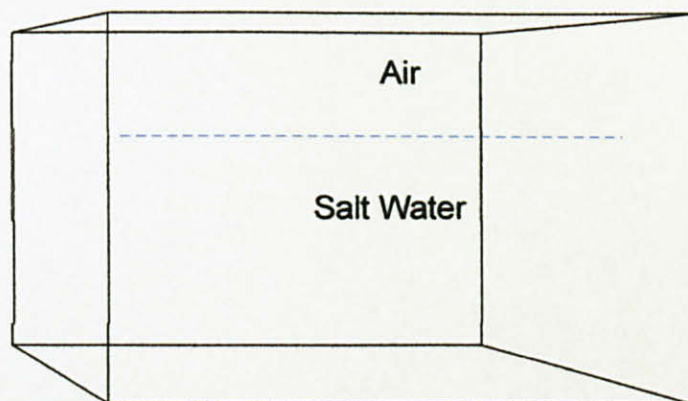


Figure 15: Resistive Medium of Sea Water

The orientation of the source and receiver were used throughout the experiment is in broadside position.

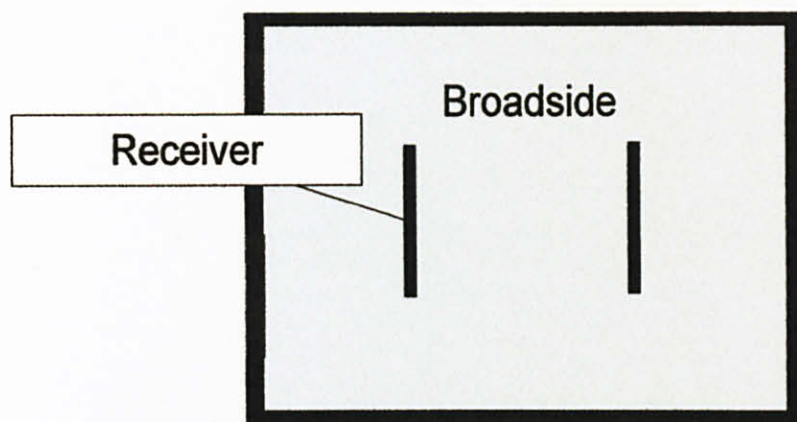


Figure 16: Broadside Orientation from Top View

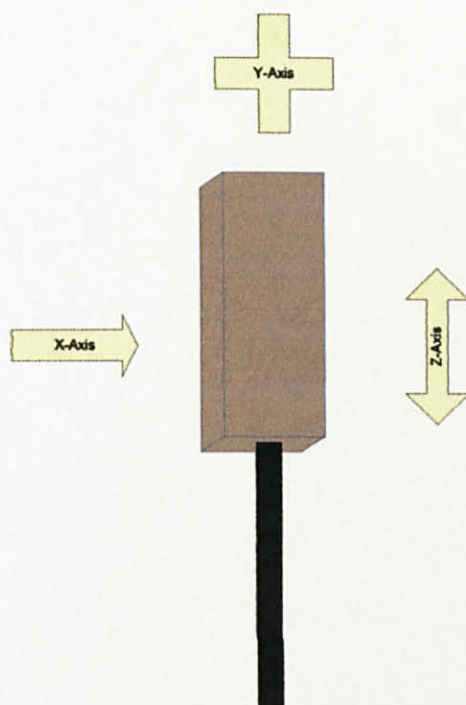


Figure 17: Dimension of the Bartington Detector

a. Glass Plan View:

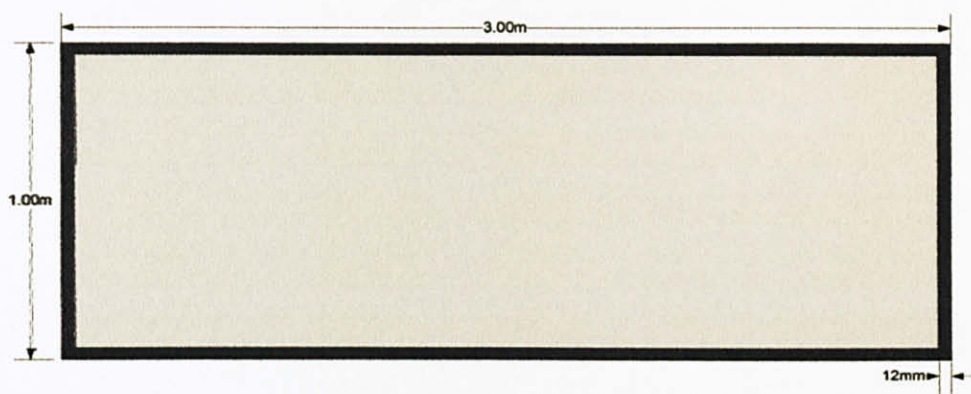


Figure 18: Glass Plan View

b. Glass Front View:

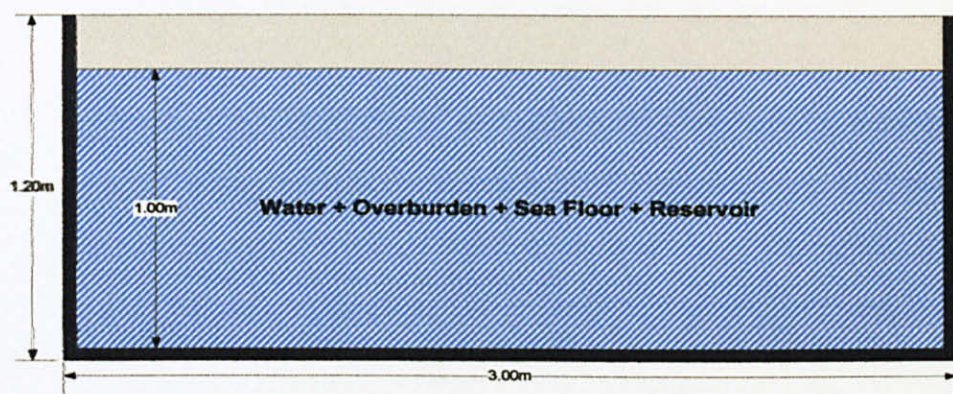


Figure 19: Glass Front View

c. Glass Side View:

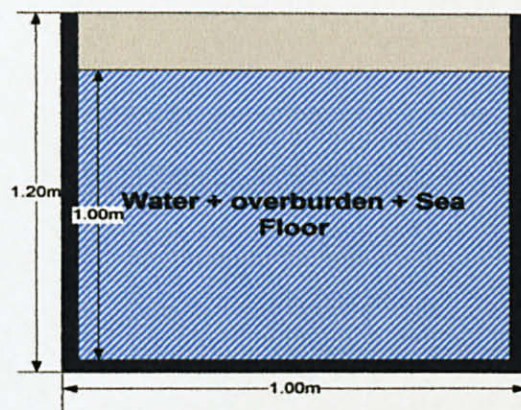


Figure 20: Glass Side View

3.5 General Setting of the Experiment

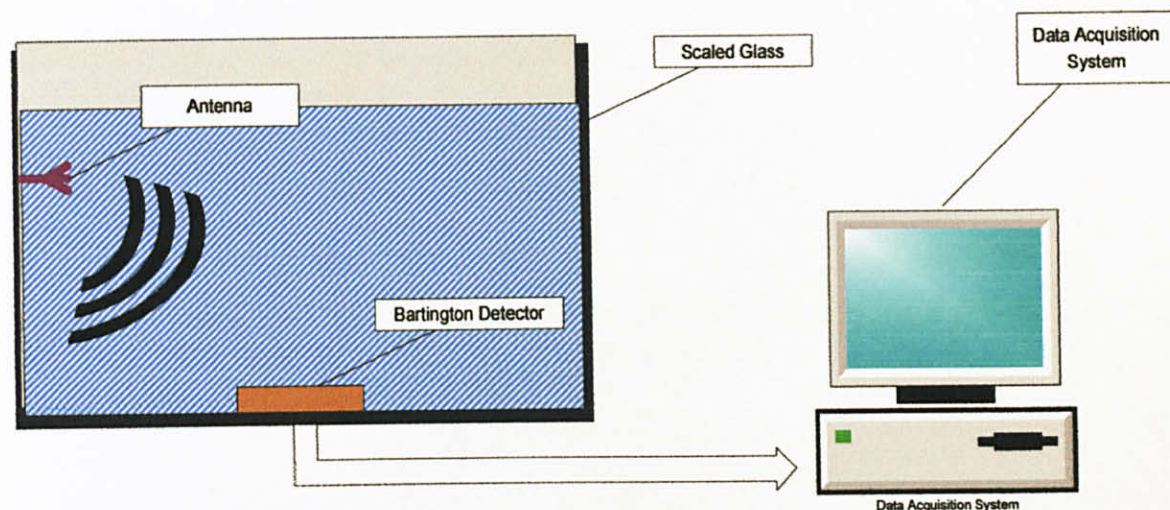


Figure 21: Preliminary Testing Setup

a. Steps:

- i. The equipments are setup as shown in figure 19.
- ii. The transmitter is moved to the right side.
- iii. The results as recorded using Data Acquisition System.

b. Result:

Table 4: Preliminary Testing Result

	X-axis	Y-Axis	Z-Axis
40 cm	1.98E-08	1.72E-08	2.02E-08
30 cm	2.85E-08	2.75E-08	1.32E-08
20 cm	2.62E-08	3.60E-08	1.69E-08
10 cm	2.18E-08	2.62E-08	1.48E-08
No EM	1.82E-08	1.46E-08	9.50E-09

c. Discussions:

- i. The Bartington Detector can detect the propagated EM from x-axis, y-axis and z-axis.
- ii. Every axis will detect different reading of EM according to the direction of propagated EM.
- iii. If no EM is being projected, there is still reading recorded by the data Acquisition System which is EM from the environment.

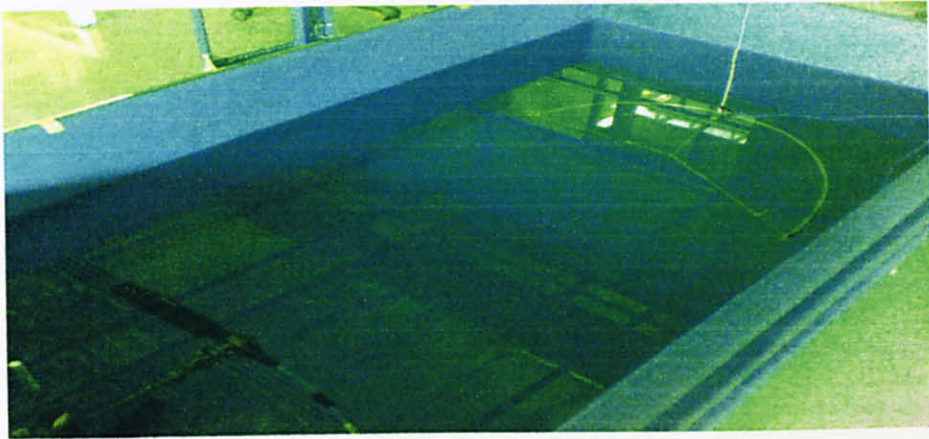


Figure 22: Curve Transmitter in Seawater (Sediment)

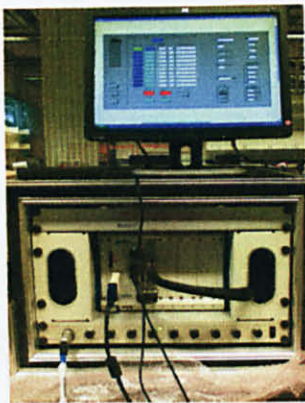


Figure 23: Data Acquisition System



Figure 24: Bartington Detector

3.6 Setting of the Experiment Representing SBL

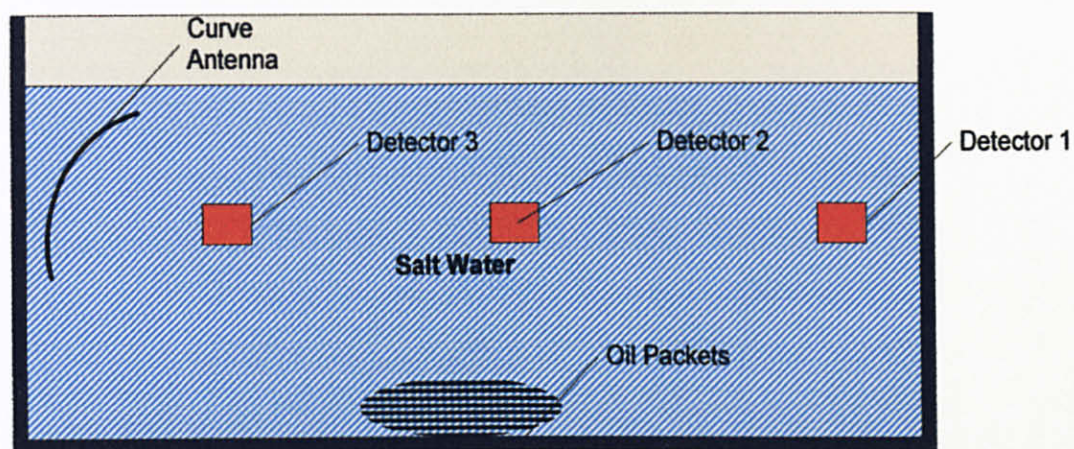


Figure 25: Setup Representing SBL Activity

This setup could represent SBL activity with the antenna as the transmitter, the cooking oil as the hydrocarbon and the detectors as the seafloor detectors.

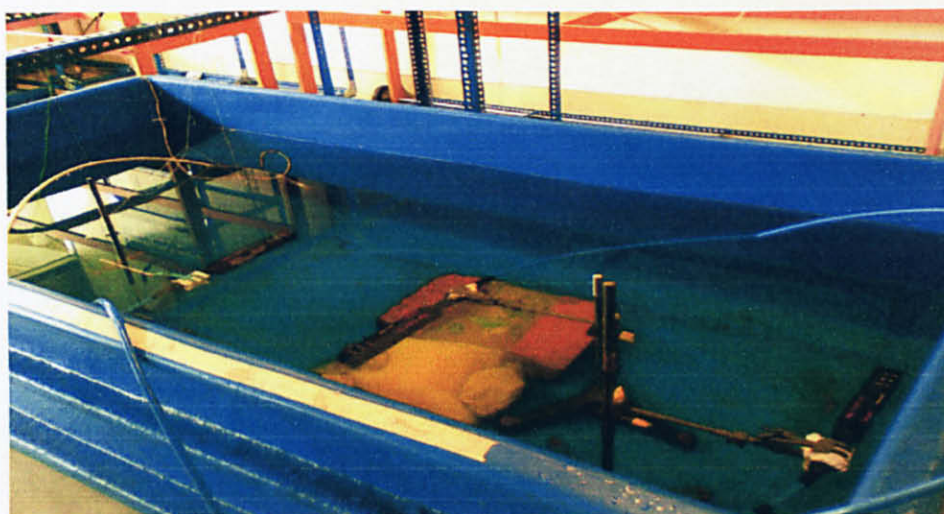


Figure 26: Setup Representing SBL Activity in Lab

CHAPTER 4

RESULT AND DISCUSSION

The effects on the signal propagation of the resistive layer were investigated by manipulating parameters of the project. Firstly, the pattern of using Curve Transmitter and Straight Transmitter were investigated. Secondly, we vary the frequency of the propagated EM Wave from 500 Hz to 1000Hz. After that, the resistivity of tap water is manipulated. Hence the experiments were done in several conditions which are:

- a. Experiment 1 – Difference between Curve and Straight Transmitter.
- b. Experiment 2 – Effect of Various Resistivity when the Frequency is fixed.
- c. Experiment 3 – Effect of Various Frequencies when the Resistivity is fixed.
- d. Experiment 4 – Detection of Hydrocarbon and Position of Detectors.

4.1 Experiment 1 – Difference between Curve and Straight Transmitter

a. The setup of the experiment are:

Table 5: Setup for Experiment 1 (a)

	Transmitter	Detector	Distance	Propagated Frequency	Medium
Condition 1	Curve	Bartington	1.0 m – 0.4 m	1000 Hz	Air
Condition 2	Straight	Bartington	1.0 m – 0.4 m	1000 Hz	Air

Result:

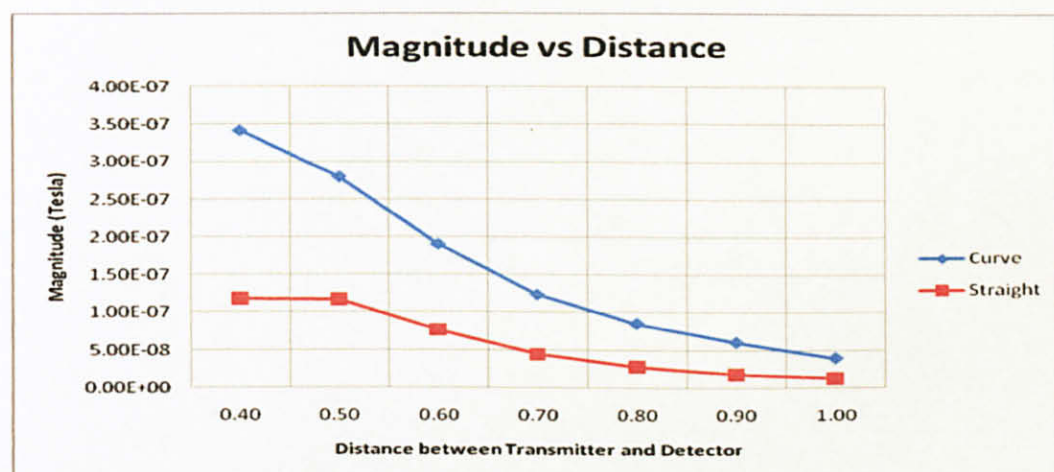


Figure 27: Comparison Graph between Curve and Straight Transmitter

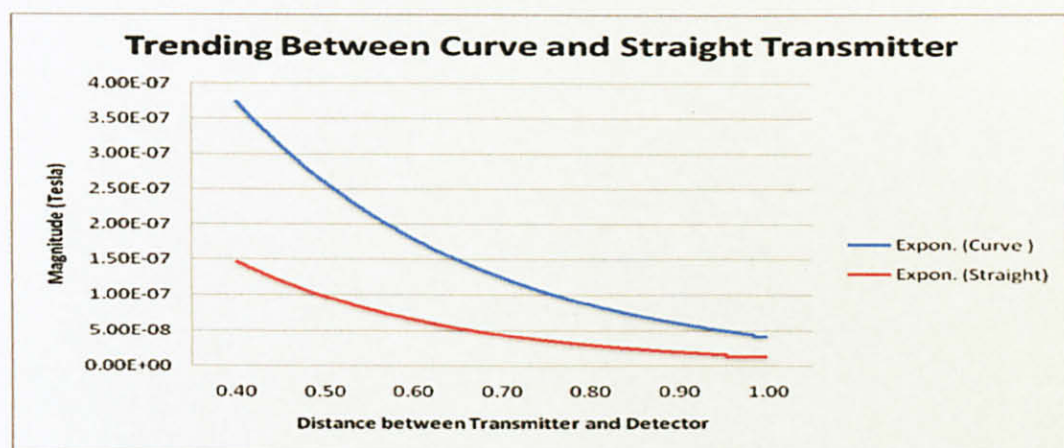


Figure 28: Comparison Trend between Curve and Straight Transmitter

4.2 Experiment 2 – Difference in Resistivity when the Frequency is fixed

Table 6: Setup for Experiment 2 (a)

	Antenna	Offset	Freq	Resistivity	Conductivity
1	Curve	1.0 m – 0.2 m	1000 Sz	1.14 Ωm	0.877 S
2	Curve	1.0 m – 0.2 m	1000 Sz	1.32 Ωm	0.758 S
3	Curve	1.0 m – 0.2 m	1000 Sz	1.52 Ωm	0.658 S
4	Curve	1.0 m – 0.2 m	1000 Sz	1.60 Ωm	0.625 S

Table 7: Setup for Experiment 2 (b)

	Antenna	Offset	Freq	Resistivity	Conductivity
1	Curve	1.0 m – 0.2 m	750 Sz	1.14 Ωm	0.877 S
2	Curve	1.0 m – 0.2 m	750 Sz	1.32 Ωm	0.758 S
3	Curve	1.0 m – 0.2 m	750 Sz	1.52 Ωm	0.658 S
4	Curve	1.0 m – 0.2 m	750 Sz	1.60 Ωm	0.625 S

Table 8: Setup for Experiment 2 (c)

	Antenna	Offset	Freq	Resistivity	Conductivity
1	Curve	1.0 m – 0.2 m	500 Sz	1.14 Ωm	0.877 S
2	Curve	1.0 m – 0.2 m	500 Sz	1.32 Ωm	0.758 S
3	Curve	1.0 m – 0.2 m	500 Sz	1.52 Ωm	0.658 S
4	Curve	1.0 m – 0.2 m	500 Sz	1.60 Ωm	0.625 S

Amplitude vs Offset

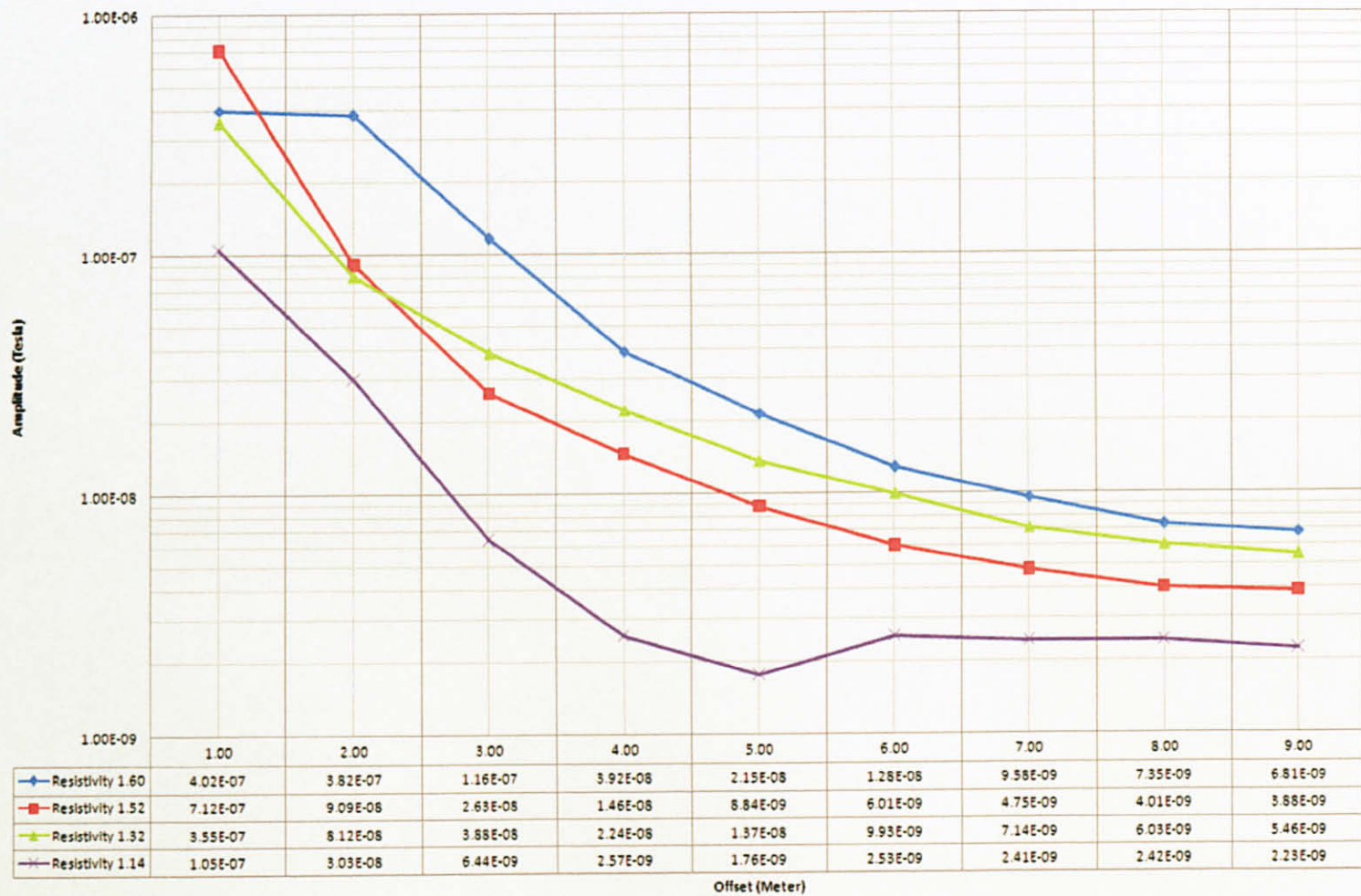


Figure 29: Comparison Graph among Various Resistivity for 1000Hz

Amplitude vs Offset

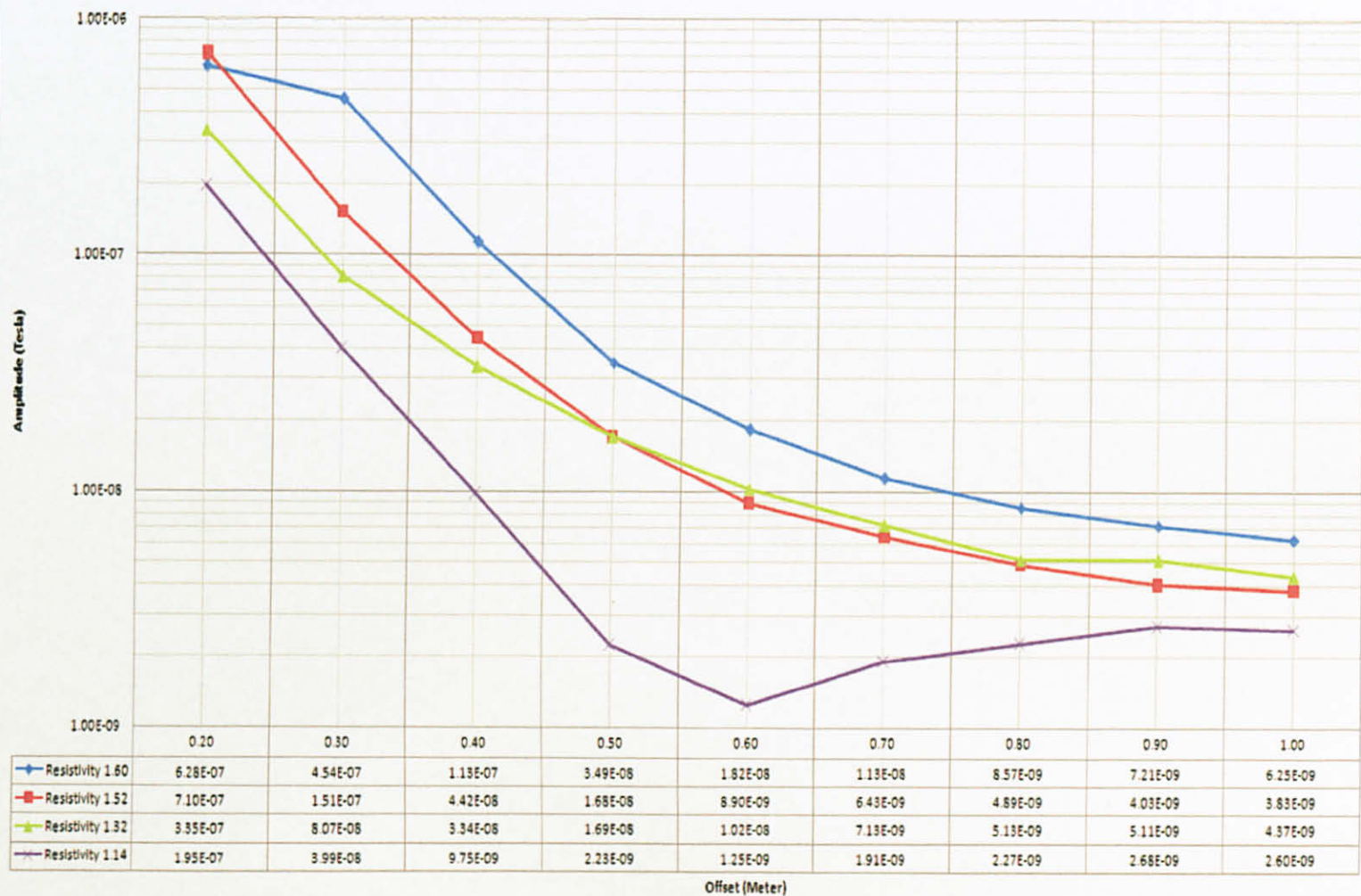


Figure 30: Comparison Graph among Various Resistivity for 750Hz

Magnitude vs Offset

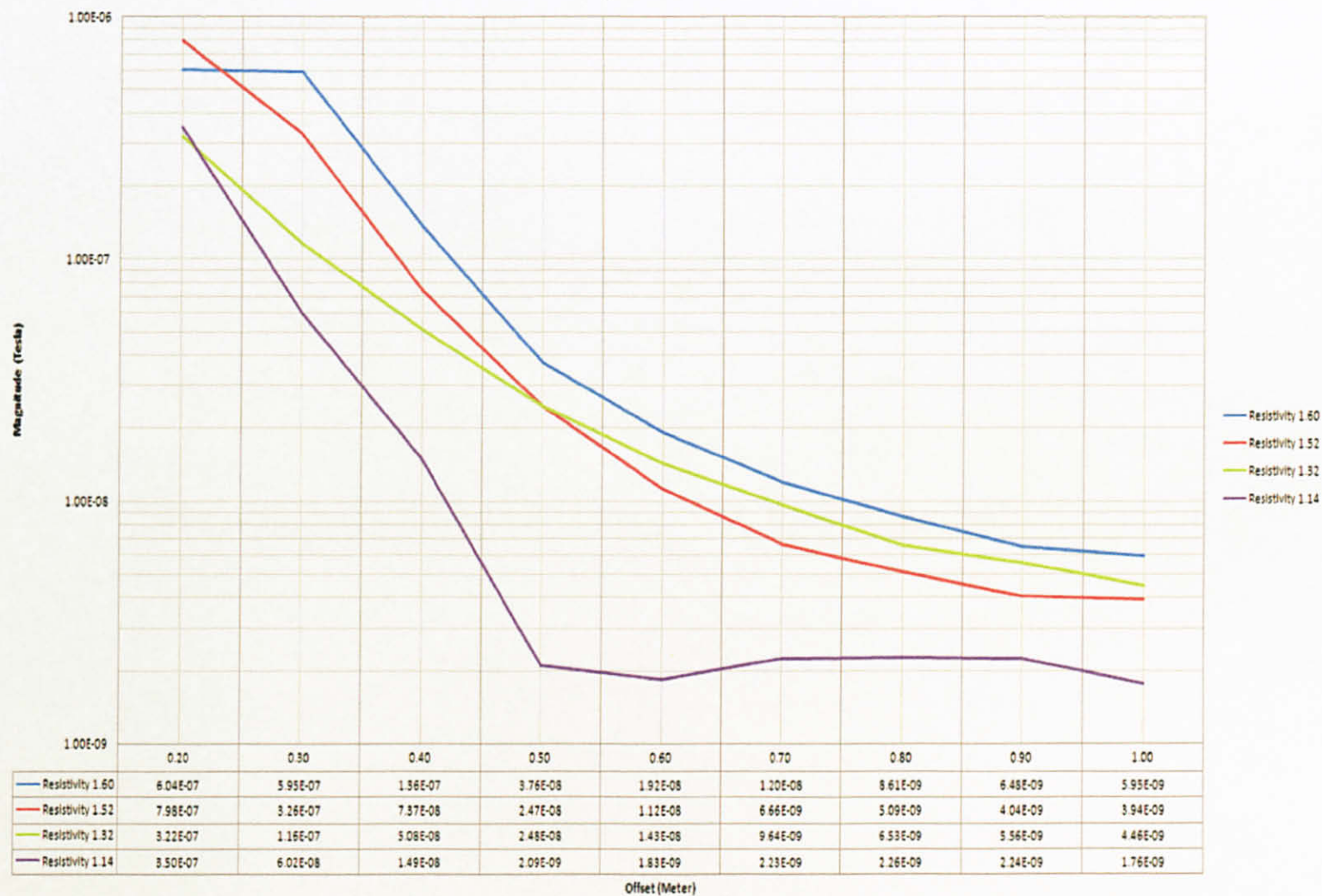


Figure 31: Comparison Graph among Various Resistivity for 500Hz

4.3 Experiment 3 – Difference between Frequencies when the Resistivity is fixed

a. The setup of the experiment is:

Table 9: Setup for Experiment 3 (a)

	Antenna	Offset	Freq	Resistivity	Conductivity
1	Curve	1.0 m – 0.2 m	1000 Hz	1.14 Ωm	0.877 H
2	Curve	1.0 m – 0.2 m	750 Hz	1.14 Ωm	0.877 H
3	Curve	1.0 m – 0.2 m	500 Hz	1.14 Ωm	0.877 H

Table 10: Setup for Experiment 3 (b)

	Antenna	Offset	Freq	Resistivity	Conductivity
1	Curve	1.0 m – 0.2 m	1000 Hz	1.32 Ωm	0.758 H
2	Curve	1.0 m – 0.2 m	750 Hz	1.32 Ωm	0.758 H
3	Curve	1.0 m – 0.2 m	500 Hz	1.32 Ωm	0.758 H

Table 11: Setup for Experiment 3 (c)

	Antenna	Offset	Freq	Resistivity	Conductivity
1	Curve	1.0 m – 0.2 m	1000 Hz	1.52 Ωm	0.658 H
2	Curve	1.0 m – 0.2 m	750 Hz	1.52 Ωm	0.658 H
3	Curve	1.0 m – 0.2 m	500 Hz	1.52 Ωm	0.658 H

Table 12: Setup for Experiment 3 (d)

	Antenna	Offset	Freq	Resistivity	Conductivity
1	Curve	1.0 m – 0.2 m	1000 Hz	1.60 Ωm	0.625 H
2	Curve	1.0 m – 0.2 m	750 Hz	1.60 Ωm	0.625 H
3	Curve	1.0 m – 0.2 m	500 Hz	1.60 Ωm	0.625 H

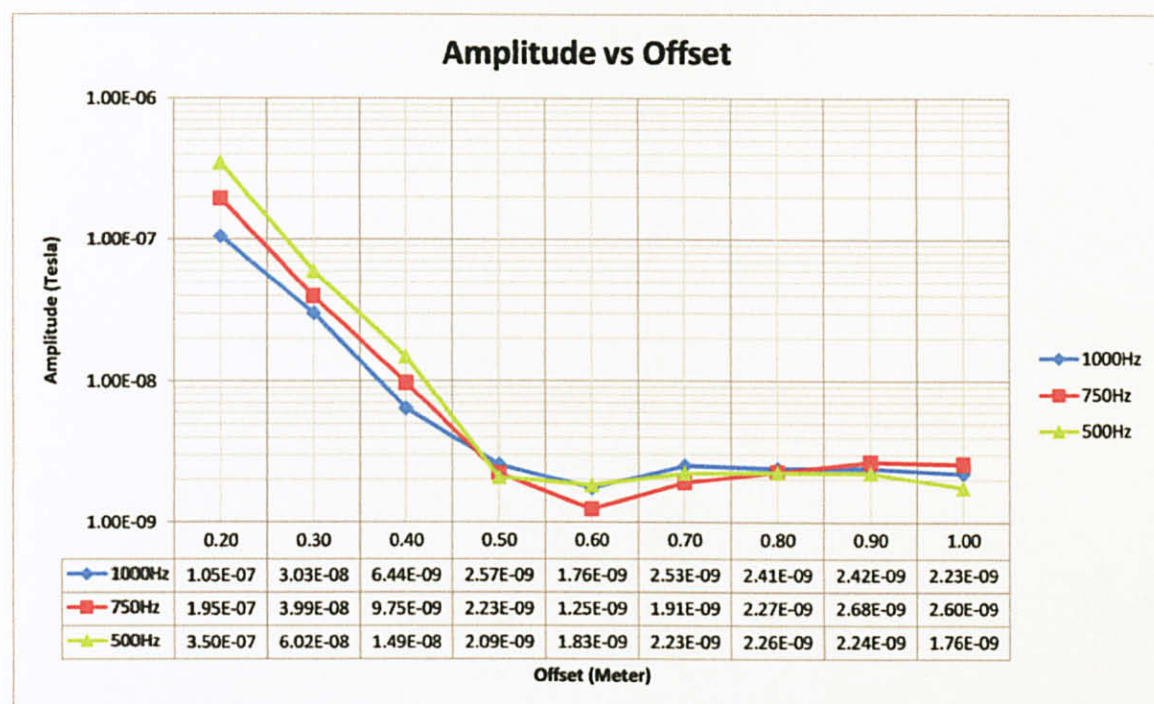


Figure 32: Comparison Graph between Frequencies of 1.14 Resistivity

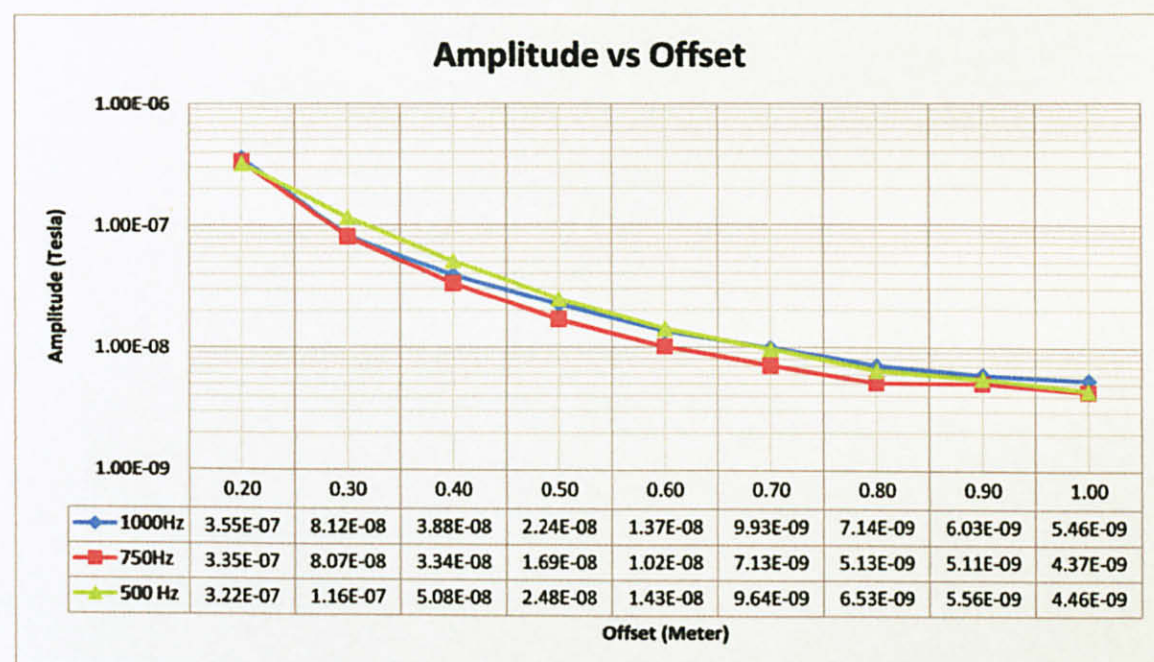


Figure 33: Comparison Graph between Frequencies of 1.32 Resistivity

Magnitude vs Offset

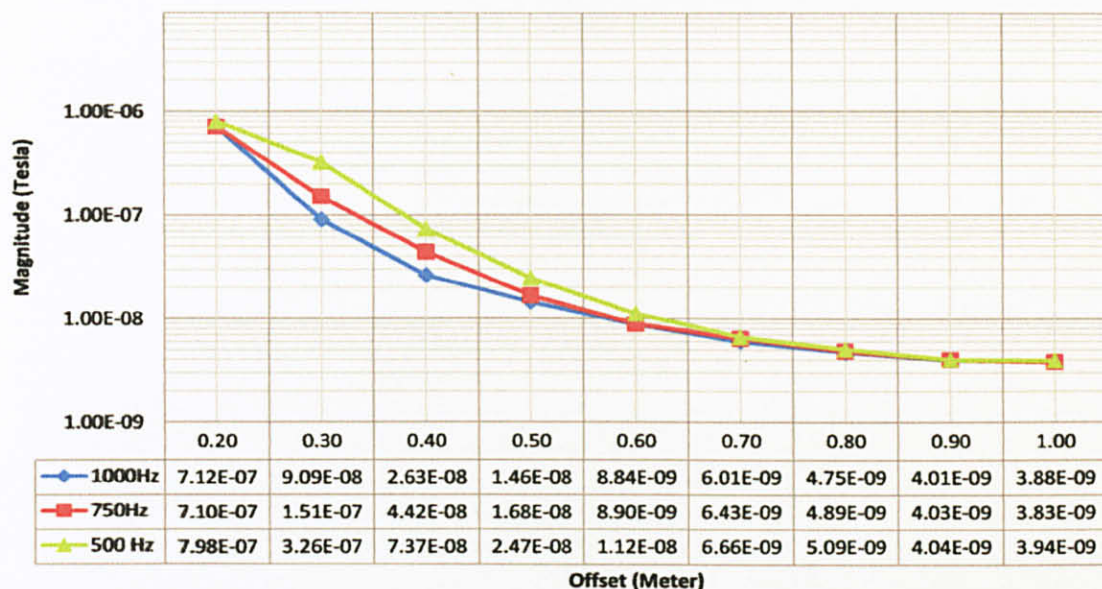


Figure 34: Comparison Graph between Frequencies of 1.52 Resistivity

Magnitude vs Offset

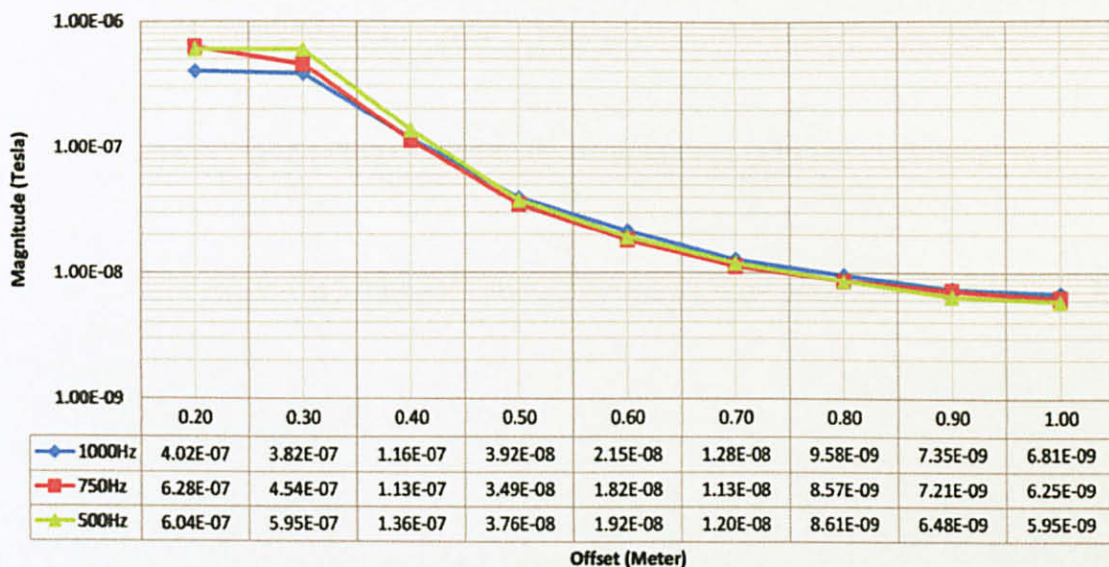


Figure 35: Comparison Graph between Frequencies of 1.60 Resistivity

4.4 Experiment 4 – Effect of Hydrocarbon and Position of Detectors

Table 13: Reading of Detector 1

	Detector1 X	Detector1 Y	Detector1 Z	Magnitude
Without Oil Packets	1.46E-09 T	1.13E-09 T	1.12E-09 T	2.16E-09 T
With Oil Packets	2.56E-09 T	2.20E-09 T	2.08E-09 T	3.96E-09 T

Table 14: Reading of Detector 2

	Detector2 X	Detector2 Y	Detector2 Z	Magnitude
Without Oil Packets	2.03E-09 T	9.77E-10 T	1.07E-09 T	2.49E-09 T
With Oil Packets	2.77E-09 T	1.91E-09 T	1.81E-09 T	3.82E-09 T

Table 15: Reading of Detector 3

	Detector3 X	Detector3 Y	Detector3 Z	Magnitude
Without Oil Packets	1.36E-08 T	5.17E-09 T	3.71E-09 T	1.50E-08 T
With Oil Packets	3.16E-08 T	1.07E-08 T	2.67E-09 T	3.35E-08 T

4.5 Discussion

4.5.1 Scaled Model Calculation

The ratio of the full scale and the laboratory scale dimension is:

$$\frac{d_{fs}}{d_{lab}} = n \qquad \frac{100m}{1m} = 100$$

Hence our frequency used in the lab:

$$n^2 f_{fs} = f_{lab}$$

$$(10\,000)(0.1\text{ Hz}) = 1000\text{ Hz}$$

The condition of the instrument (Detector Detector) which only can detect the maximum frequency of 1 KHz, we have to modify the value of the frequency to fix with the limitation. In this project, the representation of real offshore scale in 100m, this does not reach the seafloor yet.

4.5.2 Curve Transmitter and Straight Transmitter

The fabrication of the transmitter (antenna) is an important aspect in this research even though we are not focusing on them. In this project, we use only one type of transmitter in order to ensure the result is comparable with all conditions of the experiments. The curve (half ring) transmitter is made of aluminium rod will propagates higher intensity of magnetic field compared with the straight transmitter. This is due to the higher concentrating of magnetic field which produced from the center of the antenna.

4.5.3 Wave Length, Skin Depth and Phase Velocity

Table 16: Result of Wave Length, Skin Depth and Phase Velocity

Freq (Hz)	Conductivity, σ (Henry)	Resistivity (Ωm)	Skin Depth, δ (m)	Phase Velocity, C_p (m/s)	Wavelength, λ (m)
500	0.877	1.14	24.03	75.51×10^3	151.01
500	0.758	1.32	25.85	81.22×10^3	162.44
500	0.658	1.52	27.75	87.17×10^3	174.34
500	0.625	1.60	28.47	75.51×10^3	178.89
750	0.877	1.14	19.62	92.48×10^3	123.30
750	0.758	1.32	21.11	99.47×10^3	132.63
750	0.658	1.52	22.66	106.76×10^3	142.35
750	0.625	1.60	23.25	109.54×10^3	146.06
1000	0.877	1.14	16.99	106.78×10^3	106.78
1000	0.758	1.32	18.28	114.86×10^3	114.86
1000	0.658	1.52	19.62	123.28×10^3	123.28
1000	0.625	1.60	20.13	126.49×10^3	126.49

The higher resistivity mediums will increase the experiment parameters (wave length, skin depth and phase velocity). When the frequency is reduced, the skin depth and wavelength become higher but the phase velocity becomes lower.

4.5.4 The Effect of Resistivity and Frequency

The main focus of this research is to study the effect of resistivity on the propagated EM Wave. The resistivity is the inverse of conductivity. The results (figure 29, figure 30, and figure 31) indicate that as the resistivity is higher the magnitude of the EM Wave will be higher in every position (offset). This shows the skin depth will be higher if EM wave is being penetrated in higher resistive sediments. This agrees with the theoretical calculation shows that the skin depth is increased with the increased of resistivity. Hence, EM wave could be guided further as it penetrates in higher resistive medium.

The research was proceeding with varying frequency. The results are shown in figure 32, figure 33, figure 34, and figure 35. We could see the significant different in term of their amplitudes. The amplitudes will decrease as the frequency is higher. This is due to the Skin Depth effect, which the higher frequency of EM Wave, the wave can only penetrate shorter distance. However, some data in the graphs were not consistence with theoretical result. These might be the result of each data has small different with one another and the constraint of the frequency variations due to detector capability that only detect frequencies up to 1000Hz. We could say, these result agrees with the theoretical calculation shows that the skin depth is decreased with the increasing of frequency. Hence, EM wave could be guided further as it penetrates with lower frequency.

This pattern proves the concept that the EM wave can penetrat further in the higher resistive medium and in real situation, SBL activity just propagates small amount of EM wave such 0.1 Hz. That particular wave can penetrate until it reaches hydrocarbon and will be reflected to seafloor detectors.

4.5.5 Deviation on Distance Analysis

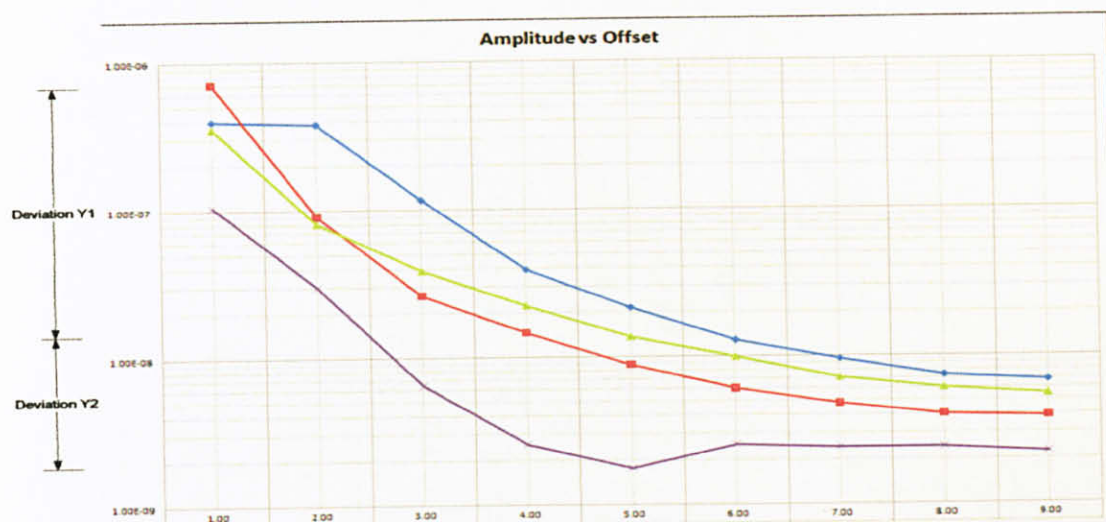


Figure 36: Deviation for Different Distance

From the graph in figure 36, we could see that as the EM wave is propagated further, the EM Wave will be attenuated at lower rate. In deviation Y1, the rate of decreasing is greater compare with deviation Y2. The deviation Y1 and deviation Y2 show that; as EM wave penetrates further, the rate of the changing EM amplitude becomes smaller.

It shows that; as EM wave penetrate through a resistive medium, the amplitude will be attenuated but not in radical change. In real sediment, there are a lot of resistive factor such soil, rock and seawater, so the EM could penetrate into those resistive layer through narrow aperture (hole) which reflection coefficient is small.

The EM is guided inside the layer and propagates with higher speed and relatively low attenuation. This behavior shows the EM wave can be propagated in fairly long distance until it reaches the hydrocarbon. However, when the signal reaches the hydrocarbon; it will be reflected due to the very high resistivity of the hydrocarbon.

4.5.6 SBL Representation Experiment's Analysis

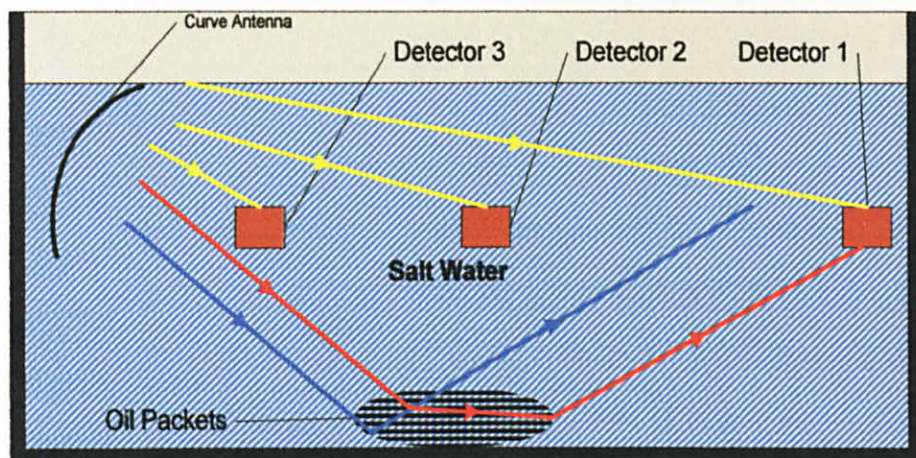


Figure 37: Reflected Wave in SBL Representation Experiment

In this experiment, we could see the different intensity recorded by detector 1, detector 2 and detector 3. There were significant different when the oil packets were removed from the saltwater. As shown in table 11, table 12 and table 13; the experiment where the oil packets is place in the bottom of the tank produces higher average amplitude.

When the oil packets were placed in the tank, the detector 3 traced highest intensity of EM wave. This is due to the EM wave directly from the source is traced and at the same time its position is the nearest with the source which is $1.07\text{E-}08$. However, if we compare the reading from detector 2 and the detector 1; it will show us the very significant result. In average, the Detector 1 traced higher amplitude of EM wave which is $2.20\text{E-}09$ compare with Detector 2 which is $1.07\text{E-}08$.

When an EM Wave is incident reaches very high resistive medium, it will be diffracted. In this case the diffraction (radial scattering) caused by an abrupt discontinuity in the reflector [10]. Supposedly, the seafloor detectors which trace the EM wave before it being reflected will detect small amplitude of EM than the EM wave after it reflected by the hydrocarbon will trace higher amplitude of EM wave. This pattern prove, in that particular place has hydrocarbon reservoir.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The purpose of the water-tank experiment was to investigate if a thin resistive layer (representing a hydrocarbon-filled reservoir) buried in a resistive medium would give a directly detectable EM response. The experiment showed that such detection was indeed possible.

The EM Wave will be attenuated as it is propagates through a resistive medium. The higher resistive medium will guide the penetrated EM wave fairly long distance and then it will be reflected when it reaches very high resistive medium (hydrocarbon reservoir). SBL activity used very small frequency as the lower frequency could propagate EM Wave for longer distance.

The different resistive detected in seafloor detectors in could validate that the effect of the resistive mediums on the EM Wave can be used to detect hydrocarbon build in sediment.

5.2 Recommendation

The results obtained in this research are relevant with the objectives. If this project is expanded in wider scope such considering more parameters, we will be able find lot of significant theories and at the same time gain more knowledge in applied sciences. So, I would like to suggest several recommendations regarding this research:

- a. To fabricate the closer to actual calculated scaled tank, for example smaller ratio of full scale distance against lab scale or $\frac{d_{fs}}{d_{lab}} = n$
- b. To use higher range of frequency.
- c. To add parameters such as temperature and pressure since these two parameters affect the resistivity of the sediment and hydrocarbon.
- d. To conduct experiment with 2-D detector positions.

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APPENDICES

APPENDIX A – Raw reading for Straight Transmitter

APPENDIX B – Raw reading for Curve Transmitter

APPENDIX C – Raw reading for the Resistivity 1.14

APPENDIX D – Raw reading for the Resistivity 1.32

APPENDIX E – Raw reading for the Resistivity 1.52

APPENDIX F – Raw reading for the Resistivity 1.60

APPENDIX G – Raw reading for the 3 Detector with Cooking Oil

APPENDIX H – Raw reading for the 3 Detector without Cooking Oil

APPENDIX A

Raw reading for Straight Transmitter

Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances		Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances		
1	1.32E-08	3.09E-09	2.52E-09	100.00		34	1.70E-08	3.06E-09	2.46E-09	93.27		
2	1.34E-08	2.69E-09	2.35E-09	99.80		35	1.72E-08	3.46E-09	2.53E-09	93.06		
3	1.34E-08	2.95E-09	2.23E-09	99.59		36	1.71E-08	3.02E-09	2.44E-09	92.86		
4	1.30E-08	2.53E-09	2.15E-09	99.39		37	1.74E-08	3.37E-09	2.50E-09	92.65		
5	1.35E-08	2.59E-09	2.12E-09	99.18		38	1.76E-08	3.62E-09	2.64E-09	92.45		
6	1.37E-08	2.88E-09	2.09E-09	98.98		39	1.83E-08	3.51E-09	2.88E-09	92.24		
7	1.39E-08	2.96E-09	1.95E-09	98.78		40	1.75E-08	2.81E-09	2.28E-09	92.04		
8	1.39E-08	2.97E-09	2.23E-09	98.57		41	1.78E-08	3.68E-09	2.68E-09	91.84		
9	1.41E-08	2.86E-09	2.11E-09	98.37		42	1.79E-08	3.08E-09	2.40E-09	91.63		
10	1.43E-08	2.93E-09	2.14E-09	98.16		43	1.82E-08	3.38E-09	2.61E-09	91.43		
11	1.43E-08	3.41E-09	2.40E-09	97.96		44	1.83E-08	3.27E-09	2.72E-09	91.22		
12	1.44E-08	2.51E-09	1.93E-09	97.76		45	1.82E-08	2.94E-09	2.64E-09	91.02		
13	1.41E-08	2.75E-09	2.01E-09	97.55		46	1.83E-08	3.14E-09	2.58E-09	90.82		
14	1.49E-08	3.07E-09	2.56E-09	97.35		47	1.86E-08	3.40E-09	2.95E-09	90.61		
15	1.48E-08	3.10E-09	2.43E-09	97.14		48	1.85E-08	2.95E-09	2.81E-09	90.41		
16	1.49E-08	2.93E-09	2.17E-09	96.94		49	1.89E-08	3.18E-09	2.74E-09	90.20		
17	1.56E-08	3.69E-09	2.93E-09	96.73		50	1.93E-08	3.51E-09	2.80E-09	90.00		
18	1.54E-08	3.16E-09	2.70E-09	96.53		51	1.96E-08	3.14E-09	2.67E-09	89.80		
19	1.49E-08	2.91E-09	2.24E-09	96.33		52	1.98E-08	3.46E-09	3.19E-09	89.59		
20	1.54E-08	2.59E-09	2.25E-09	96.12		53	2.01E-08	3.34E-09	2.92E-09	89.39		
21	1.57E-08	3.13E-09	2.63E-09	95.92		54	2.00E-08	3.44E-09	2.76E-09	89.18		
22	1.57E-08	2.71E-09	2.06E-09	95.71		55	2.05E-08	3.63E-09	2.78E-09	88.98		
23	1.57E-08	2.90E-09	2.21E-09	95.51		56	2.02E-08	3.30E-09	2.87E-09	88.78		
24	1.61E-08	3.07E-09	2.77E-09	95.31		57	2.04E-08	3.35E-09	2.85E-09	88.57		
25	1.57E-08	2.85E-09	2.32E-09	95.10		58	2.05E-08	3.44E-09	3.07E-09	88.37		
26	1.60E-08	2.93E-09	2.24E-09	94.90		59	2.08E-08	3.20E-09	2.79E-09	88.16		
27	1.62E-08	3.02E-09	2.49E-09	94.69		60	2.07E-08	3.22E-09	3.03E-09	87.96		
28	1.64E-08	3.23E-09	2.71E-09	94.49		61	2.06E-08	3.36E-09	3.05E-09	87.76		
29	1.64E-08	3.09E-09	2.50E-09	94.29		62	2.15E-08	3.14E-09	3.31E-09	87.55		
30	1.65E-08	2.96E-09	2.26E-09	94.08		63	2.11E-08	3.26E-09	2.94E-09	87.35		
31	1.64E-08	2.96E-09	2.42E-09	93.88		64	2.21E-08	3.30E-09	3.21E-09	87.14		
32	1.68E-08	2.97E-09	2.57E-09	93.67		65	2.19E-08	3.49E-09	2.86E-09	86.94		
33	1.67E-08	3.28E-09	2.55E-09	93.47		66	2.20E-08	3.51E-09	2.96E-09	86.73		

Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances		Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances		
67	2.23E-08	3.53E-09	3.34E-09	86.53		100	2.96E-08	3.88E-09	4.34E-09	79.80		
68	2.25E-08	3.54E-09	3.26E-09	86.33		101	2.99E-08	3.70E-09	4.19E-09	79.59		
69	2.26E-08	3.25E-09	3.18E-09	86.12		102	3.01E-08	3.80E-09	4.45E-09	79.39		
70	2.29E-08	3.50E-09	3.22E-09	85.92		103	3.07E-08	3.53E-09	4.69E-09	79.18		
71	2.28E-08	3.32E-09	3.01E-09	85.71		104	3.03E-08	3.60E-09	4.28E-09	78.98		
72	2.27E-08	3.52E-09	3.07E-09	85.51		105	3.12E-08	3.90E-09	4.95E-09	78.78		
73	2.32E-08	3.61E-09	3.33E-09	85.31		106	3.07E-08	3.73E-09	4.56E-09	78.57		
74	2.37E-08	3.70E-09	3.93E-09	85.10		107	3.10E-08	3.77E-09	4.29E-09	78.37		
75	2.38E-08	3.52E-09	3.35E-09	84.90		108	3.15E-08	3.88E-09	4.73E-09	78.16		
76	2.46E-08	3.62E-09	3.49E-09	84.69		109	3.17E-08	3.75E-09	4.73E-09	77.96		
77	2.40E-08	3.62E-09	3.32E-09	84.49		110	3.15E-08	3.58E-09	4.46E-09	77.76		
78	2.46E-08	3.92E-09	4.05E-09	84.29		111	3.18E-08	3.52E-09	4.27E-09	77.55		
79	2.45E-08	3.34E-09	3.33E-09	84.08		112	3.19E-08	3.95E-09	4.53E-09	77.35		
80	2.56E-08	3.48E-09	3.97E-09	83.88		113	3.23E-08	3.82E-09	4.42E-09	77.14		
81	2.55E-08	3.86E-09	3.79E-09	83.67		114	3.26E-08	3.60E-09	4.52E-09	76.94		
82	2.50E-08	3.71E-09	3.49E-09	83.47		115	3.32E-08	3.98E-09	4.67E-09	76.73		
83	2.57E-08	3.39E-09	3.59E-09	83.27		116	3.33E-08	3.95E-09	4.50E-09	76.53		
84	2.58E-08	3.48E-09	3.55E-09	83.06		117	3.33E-08	3.80E-09	4.76E-09	76.33		
85	2.62E-08	3.64E-09	3.86E-09	82.86		118	3.35E-08	3.44E-09	4.53E-09	76.12		
86	2.64E-08	3.51E-09	3.60E-09	82.65		119	3.39E-08	3.70E-09	4.91E-09	75.92		
87	2.66E-08	3.70E-09	3.88E-09	82.45		120	3.40E-08	3.53E-09	4.78E-09	75.71		
88	2.67E-08	3.43E-09	3.67E-09	82.24		121	3.39E-08	3.68E-09	4.80E-09	75.51		
89	2.68E-08	3.58E-09	4.01E-09	82.04		122	3.47E-08	3.67E-09	4.74E-09	75.31		
90	2.69E-08	3.39E-09	3.78E-09	81.84		123	3.53E-08	3.54E-09	4.90E-09	75.10		
91	2.73E-08	3.74E-09	4.26E-09	81.63		124	3.58E-08	4.23E-09	4.84E-09	74.90		
92	2.74E-08	3.58E-09	3.97E-09	81.43		125	3.62E-08	3.60E-09	5.38E-09	74.69		
93	2.80E-08	3.67E-09	3.89E-09	81.22		126	3.65E-08	3.58E-09	5.03E-09	74.49		
94	2.86E-08	3.85E-09	3.96E-09	81.02		127	3.63E-08	3.42E-09	5.23E-09	74.29		
95	2.87E-08	3.46E-09	3.99E-09	80.82		128	3.70E-08	3.63E-09	5.38E-09	74.08		
96	2.88E-08	3.73E-09	3.95E-09	80.61		129	3.73E-08	3.69E-09	5.65E-09	73.88		
97	2.89E-08	3.81E-09	4.37E-09	80.41		130	3.77E-08	3.26E-09	5.09E-09	73.67		
98	2.92E-08	3.53E-09	4.06E-09	80.20		131	3.80E-08	3.09E-09	4.84E-09	73.47		
99	2.98E-08	3.74E-09	4.26E-09	80.00		132	3.82E-08	3.49E-09	5.01E-09	73.27		

Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances		Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances		
133	3.84E-08	3.70E-09	5.15E-09	73.06		166	5.54E-08	2.46E-09	7.23E-09	66.33		
134	3.92E-08	3.42E-09	5.38E-09	72.86		167	5.61E-08	2.14E-09	7.53E-09	66.12		
135	3.95E-08	3.31E-09	5.20E-09	72.65		168	5.71E-08	2.24E-09	7.58E-09	65.92		
136	4.00E-08	3.50E-09	5.40E-09	72.45		169	5.78E-08	2.04E-09	7.83E-09	65.71		
137	4.09E-08	3.48E-09	5.67E-09	72.24		170	5.83E-08	2.94E-09	7.84E-09	65.51		
138	4.06E-08	3.53E-09	5.44E-09	72.04		171	5.86E-08	2.07E-09	8.03E-09	65.31		
139	4.15E-08	3.52E-09	5.41E-09	71.84		172	5.97E-08	2.19E-09	8.11E-09	65.10		
140	4.18E-08	3.23E-09	5.79E-09	71.63		173	6.01E-08	2.16E-09	7.90E-09	64.90		
141	4.19E-08	3.21E-09	5.96E-09	71.43		174	6.12E-08	2.51E-09	8.20E-09	64.69		
142	4.28E-08	3.05E-09	5.72E-09	71.22		175	6.14E-08	2.54E-09	8.18E-09	64.49		
143	4.31E-08	2.95E-09	5.84E-09	71.02		176	6.26E-08	2.26E-09	8.48E-09	64.29		
144	4.34E-08	3.30E-09	5.89E-09	70.82		177	6.32E-08	2.16E-09	8.34E-09	64.08		
145	4.40E-08	2.98E-09	5.83E-09	70.61		178	6.34E-08	3.18E-09	8.82E-09	63.88		
146	4.47E-08	3.52E-09	6.65E-09	70.41		179	6.47E-08	2.11E-09	8.59E-09	63.67		
147	4.51E-08	3.19E-09	6.44E-09	70.20		180	6.53E-08	2.68E-09	8.71E-09	63.47		
148	4.54E-08	3.07E-09	6.55E-09	70.00		181	6.59E-08	3.11E-09	9.17E-09	63.27		
149	4.61E-08	2.66E-09	6.54E-09	69.80		182	6.68E-08	3.05E-09	8.84E-09	63.06		
150	4.66E-08	2.74E-09	6.45E-09	69.59		183	6.77E-08	3.40E-09	9.07E-09	62.86		
151	4.79E-08	3.44E-09	6.76E-09	69.39		184	6.84E-08	3.15E-09	8.93E-09	62.65		
152	4.75E-08	2.94E-09	6.46E-09	69.18		185	6.97E-08	3.26E-09	9.03E-09	62.45		
153	4.86E-08	3.02E-09	6.54E-09	68.98		186	6.99E-08	3.51E-09	9.12E-09	62.24		
154	4.90E-08	2.99E-09	6.65E-09	68.78		187	7.04E-08	3.71E-09	9.33E-09	62.04		
155	4.97E-08	2.82E-09	6.72E-09	68.57		188	7.12E-08	3.98E-09	9.54E-09	61.84		
156	5.00E-08	2.65E-09	6.87E-09	68.37		189	7.25E-08	3.83E-09	9.41E-09	61.63		
157	5.03E-08	2.60E-09	6.56E-09	68.16		190	7.39E-08	3.78E-09	9.88E-09	61.43		
158	5.08E-08	2.86E-09	6.87E-09	67.96		191	7.42E-08	4.83E-09	1.02E-08	61.22		
159	5.10E-08	2.87E-09	7.09E-09	67.76		192	7.48E-08	4.76E-09	9.76E-09	61.02		
160	5.13E-08	2.67E-09	6.74E-09	67.55		193	7.56E-08	5.15E-09	9.83E-09	60.82		
161	5.22E-08	2.68E-09	6.97E-09	67.35		194	7.67E-08	4.87E-09	9.94E-09	60.61		
162	5.30E-08	2.78E-09	7.28E-09	67.14		195	7.67E-08	5.35E-09	1.06E-08	60.41		
163	5.34E-08	2.93E-09	7.09E-09	66.94		196	7.70E-08	5.17E-09	1.00E-08	60.20		
164	5.42E-08	2.34E-09	7.37E-09	66.73		197	7.77E-08	5.58E-09	9.97E-09	60.00		
165	5.51E-08	2.77E-09	7.35E-09	66.53		198	7.85E-08	5.63E-09	9.91E-09	59.80		

Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances		Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances		
199	7.96E-08	5.52E-09	1.02E-08	59.59		232	1.12E-07	1.82E-08	1.36E-08	52.86		
200	7.97E-08	6.04E-09	1.04E-08	59.39		233	1.14E-07	1.81E-08	1.41E-08	52.65		
201	8.13E-08	6.20E-09	1.05E-08	59.18		234	1.15E-07	1.88E-08	1.40E-08	52.45		
202	8.12E-08	6.51E-09	1.04E-08	58.98		235	1.16E-07	1.98E-08	1.39E-08	52.24		
203	8.25E-08	6.58E-09	1.06E-08	58.78		236	1.17E-07	2.00E-08	1.41E-08	52.04		
204	8.31E-08	6.59E-09	1.07E-08	58.57		237	1.17E-07	2.06E-08	1.42E-08	51.84		
205	8.44E-08	7.12E-09	1.09E-08	58.37		238	1.17E-07	2.05E-08	1.44E-08	51.63		
206	8.53E-08	7.21E-09	1.09E-08	58.16		239	1.17E-07	2.06E-08	1.44E-08	51.43		
207	8.63E-08	7.45E-09	1.09E-08	57.96		240	1.18E-07	2.03E-08	1.49E-08	51.22		
208	8.73E-08	7.90E-09	1.12E-08	57.76		241	1.18E-07	2.03E-08	1.49E-08	51.02		
209	8.89E-08	8.08E-09	1.18E-08	57.55		242	1.18E-07	1.99E-08	1.47E-08	50.82		
210	8.93E-08	8.40E-09	1.10E-08	57.35		243	1.18E-07	2.07E-08	1.48E-08	50.61		
211	8.99E-08	8.54E-09	1.16E-08	57.14		244	1.17E-07	2.06E-08	1.47E-08	50.41		
212	9.05E-08	8.88E-09	1.12E-08	56.94		245	1.17E-07	2.06E-08	1.46E-08	50.20		
213	9.14E-08	9.43E-09	1.14E-08	56.73		246	1.17E-07	2.04E-08	1.50E-08	50.00		
214	9.19E-08	9.49E-09	1.16E-08	56.53		247	1.17E-07	2.02E-08	1.47E-08	49.80		
215	9.31E-08	9.54E-09	1.17E-08	56.33		248	1.17E-07	2.00E-08	1.47E-08	49.59		
216	9.42E-08	9.90E-09	1.20E-08	56.12		249	1.18E-07	2.05E-08	1.47E-08	49.39		
217	9.40E-08	1.03E-08	1.18E-08	55.92		250	1.18E-07	2.04E-08	1.50E-08	49.18		
218	9.57E-08	1.06E-08	1.20E-08	55.71		251	1.18E-07	2.00E-08	1.46E-08	48.98		
219	9.70E-08	1.15E-08	1.21E-08	55.51		252	1.18E-07	2.05E-08	1.46E-08	48.78		
220	9.73E-08	1.16E-08	1.20E-08	55.31		253	1.18E-07	2.01E-08	1.49E-08	48.57		
221	9.85E-08	1.22E-08	1.21E-08	55.10		254	1.17E-07	2.04E-08	1.47E-08	48.37		
222	1.00E-07	1.21E-08	1.19E-08	54.90		255	1.17E-07	2.08E-08	1.47E-08	48.16		
223	1.01E-07	1.37E-08	1.26E-08	54.69		256	1.17E-07	2.07E-08	1.45E-08	47.96		
224	1.01E-07	1.31E-08	1.28E-08	54.49		257	1.17E-07	1.97E-08	1.49E-08	47.76		
225	1.02E-07	1.33E-08	1.25E-08	54.29		258	1.18E-07	2.10E-08	1.47E-08	47.55		
226	1.03E-07	1.35E-08	1.25E-08	54.08		259	1.18E-07	2.00E-08	1.49E-08	47.35		
227	1.05E-07	1.45E-08	1.28E-08	53.88		260	1.17E-07	2.04E-08	1.46E-08	47.14		
228	1.06E-07	1.47E-08	1.30E-08	53.67		261	1.18E-07	2.03E-08	1.48E-08	46.94		
229	1.07E-07	1.60E-08	1.32E-08	53.47		262	1.18E-07	2.06E-08	1.46E-08	46.73		
230	1.09E-07	1.59E-08	1.37E-08	53.27		263	1.17E-07	2.02E-08	1.43E-08	46.53		
231	1.10E-07	1.68E-08	1.36E-08	53.06		264	1.17E-07	2.06E-08	1.38E-08	46.33		

Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distances								
265	1.18E-07	1.99E-08	1.45E-08	46.12								
266	1.17E-07	2.00E-08	1.42E-08	45.92								
267	1.18E-07	2.04E-08	1.43E-08	45.71								
268	1.18E-07	1.99E-08	1.47E-08	45.51								
269	1.18E-07	1.98E-08	1.46E-08	45.31								
270	1.18E-07	1.99E-08	1.45E-08	45.10								
271	1.17E-07	2.05E-08	1.44E-08	44.90								
272	1.18E-07	2.01E-08	1.44E-08	44.69								
273	1.17E-07	2.06E-08	1.43E-08	44.49								
274	1.17E-07	2.04E-08	1.44E-08	44.29								
275	1.17E-07	2.01E-08	1.44E-08	44.08								
276	1.18E-07	2.01E-08	1.43E-08	43.88								
277	1.18E-07	2.00E-08	1.46E-08	43.67								
278	1.17E-07	2.01E-08	1.43E-08	43.47								
279	1.18E-07	2.03E-08	1.44E-08	43.27								
280	1.17E-07	2.05E-08	1.41E-08	43.06								
281	1.18E-07	2.07E-08	1.45E-08	42.86								
282	1.18E-07	2.01E-08	1.42E-08	42.65								
283	1.17E-07	2.08E-08	1.41E-08	42.45								
284	1.17E-07	2.03E-08	1.43E-08	42.24								
285	1.18E-07	2.02E-08	1.42E-08	42.04								
286	1.17E-07	2.05E-08	1.41E-08	41.84								
287	1.18E-07	2.01E-08	1.42E-08	41.63								
288	1.18E-07	2.01E-08	1.45E-08	41.43								
289	1.18E-07	2.00E-08	1.45E-08	41.22								
290	1.17E-07	2.04E-08	1.40E-08	41.02								
291	1.18E-07	1.98E-08	1.42E-08	40.82								
292	1.17E-07	2.06E-08	1.39E-08	40.61								
293	1.17E-07	2.06E-08	1.44E-08	40.41								
294	1.18E-07	1.98E-08	1.42E-08	40.20								

APPENDIX B

Raw reading for Curve Transmitter

Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distance		Reading	Sensor1 X	Sensor1 Y	Sensor1 Z	Distance
1	1.50E-09	1.02E-09	1.32E-09	100.00		34	1.26E-09	9.64E-10	1.24E-09	91.70
2	1.45E-09	1.06E-09	1.11E-09	99.75		35	1.78E-09	9.96E-10	1.00E-09	91.45
3	1.82E-09	1.01E-09	1.06E-09	99.50		36	1.52E-09	1.05E-09	1.20E-09	91.19
4	1.53E-09	1.32E-09	1.17E-09	99.25		37	1.28E-09	7.40E-10	1.27E-09	90.94
5	1.52E-09	9.62E-10	1.22E-09	98.99		38	1.37E-09	1.03E-09	1.28E-09	90.69
6	1.68E-09	9.82E-10	1.15E-09	98.74		39	1.54E-09	1.11E-09	1.11E-09	90.44
7	1.78E-09	1.16E-09	1.31E-09	98.49		40	1.40E-09	1.10E-09	1.20E-09	90.19
8	1.78E-09	8.47E-10	1.44E-09	98.24		41	1.84E-09	1.33E-09	1.53E-09	89.94
9	1.49E-09	9.80E-10	9.77E-10	97.99		42	1.92E-09	1.30E-09	1.22E-09	89.69
10	1.36E-09	1.10E-09	1.54E-09	97.74		43	1.83E-09	1.05E-09	1.18E-09	89.43
11	1.69E-09	1.70E-09	1.12E-09	97.48		44	1.30E-09	1.11E-09	1.33E-09	89.18
12	1.37E-09	8.77E-10	1.31E-09	97.23		45	1.61E-09	1.03E-09	1.64E-09	88.93
13	1.64E-09	1.14E-09	1.57E-09	96.98		46	1.43E-09	9.84E-10	1.53E-09	88.68
14	1.39E-09	9.87E-10	1.38E-09	96.73		47	1.69E-09	1.09E-09	1.53E-09	88.43
15	1.55E-09	1.24E-09	1.31E-09	96.48		48	1.99E-09	1.24E-09	1.25E-09	88.18
16	1.38E-09	8.69E-10	1.00E-09	96.23		49	1.49E-09	8.40E-10	1.29E-09	87.92
17	1.31E-09	9.41E-10	1.29E-09	95.97		50	1.94E-09	1.63E-09	1.33E-09	87.67
18	1.75E-09	1.03E-09	1.21E-09	95.72		51	1.42E-09	8.54E-10	1.05E-09	87.42
19	1.92E-09	1.37E-09	1.37E-09	95.47		52	1.49E-09	1.06E-09	1.37E-09	87.17
20	1.37E-09	9.58E-10	9.50E-10	95.22		53	1.67E-09	1.13E-09	1.22E-09	86.92
21	1.92E-09	1.30E-09	1.04E-09	94.97		54	1.48E-09	9.82E-10	1.84E-09	86.67
22	1.64E-09	1.24E-09	1.18E-09	94.72		55	1.62E-09	1.13E-09	1.33E-09	86.42
23	1.48E-09	8.63E-10	9.72E-10	94.47		56	1.61E-09	1.05E-09	1.54E-09	86.16
24	1.63E-09	1.13E-09	1.10E-09	94.21		57	1.45E-09	7.25E-10	1.36E-09	85.91
25	1.52E-09	1.00E-09	1.21E-09	93.96		58	1.59E-09	8.90E-10	1.40E-09	85.66
26	1.46E-09	1.10E-09	1.10E-09	93.71		59	1.49E-09	1.11E-09	1.70E-09	85.41
27	1.33E-09	1.30E-09	1.13E-09	93.46		60	1.71E-09	1.17E-09	1.08E-09	85.16
28	1.54E-09	8.98E-10	1.17E-09	93.21		61	1.65E-09	1.09E-09	1.08E-09	84.91
29	1.36E-09	9.94E-10	1.30E-09	92.96		62	1.83E-09	1.10E-09	1.21E-09	84.65
30	1.34E-09	7.60E-10	1.49E-09	92.70		63	1.82E-09	1.01E-09	1.38E-09	84.40
31	1.65E-09	1.26E-09	1.31E-09	92.45		64	1.47E-09	8.25E-10	1.13E-09	84.15
32	1.88E-09	1.17E-09	1.58E-09	92.20		65	1.70E-09	1.28E-09	1.28E-09	83.90
33	1.86E-09	1.03E-09	1.49E-09	91.95		66	1.51E-09	1.04E-09	1.35E-09	83.65
67	1.30E-09	8.82E-10	1.75E-09	83.40		101	1.57E-09	9.72E-10	1.42E-09	74.84

68	1.97E-09	1.09E-09	1.31E-09	83.14		102	1.73E-09	1.19E-09	1.53E-09	74.59
69	1.70E-09	1.11E-09	1.04E-09	82.89		103	1.50E-09	1.02E-09	1.58E-09	74.34
70	2.19E-09	1.25E-09	1.35E-09	82.64		104	1.88E-09	1.47E-09	1.65E-09	74.09
71	1.67E-09	9.12E-10	1.26E-09	82.39		105	1.58E-09	9.15E-10	1.20E-09	73.84
72	1.52E-09	9.75E-10	1.29E-09	82.14		106	1.64E-09	1.04E-09	1.15E-09	73.58
73	1.63E-09	1.03E-09	1.60E-09	81.89		107	1.93E-09	1.25E-09	1.32E-09	73.33
74	1.81E-09	1.11E-09	1.42E-09	81.64		108	1.71E-09	1.15E-09	1.23E-09	73.08
75	1.44E-09	8.57E-10	1.43E-09	81.38		109	1.47E-09	9.51E-10	1.57E-09	72.83
76	1.41E-09	9.84E-10	1.12E-09	81.13		110	1.49E-09	7.99E-10	1.49E-09	72.58
77	1.75E-09	9.34E-10	1.30E-09	80.88		111	1.76E-09	8.66E-10	1.86E-09	72.33
78	1.53E-09	8.73E-10	1.47E-09	80.63		112	1.72E-09	1.21E-09	1.60E-09	72.08
79	1.70E-09	1.22E-09	1.79E-09	80.38		113	1.84E-09	1.03E-09	1.53E-09	71.82
80	1.69E-09	1.10E-09	1.20E-09	80.13		114	1.68E-09	1.04E-09	1.35E-09	71.57
81	1.51E-09	1.07E-09	1.45E-09	79.87		115	1.85E-09	1.54E-09	1.78E-09	71.32
82	1.55E-09	7.81E-10	1.45E-09	79.62		116	1.70E-09	9.55E-10	2.07E-09	71.07
83	1.84E-09	1.21E-09	1.45E-09	79.37		117	1.70E-09	1.29E-09	1.44E-09	70.82
84	2.09E-09	1.31E-09	1.14E-09	79.12		118	2.02E-09	1.03E-09	1.42E-09	70.57
85	1.83E-09	1.21E-09	1.56E-09	78.87		119	1.92E-09	1.15E-09	1.24E-09	70.31
86	1.63E-09	1.30E-09	1.27E-09	78.62		120	2.00E-09	1.29E-09	1.64E-09	70.06
87	1.74E-09	1.29E-09	1.44E-09	78.36		121	2.35E-09	1.07E-09	1.30E-09	69.81
88	1.35E-09	1.10E-09	1.35E-09	78.11		122	2.18E-09	1.16E-09	1.61E-09	69.56
89	1.85E-09	9.60E-10	1.33E-09	77.86		123	1.85E-09	1.20E-09	1.97E-09	69.31
90	1.64E-09	1.12E-09	1.26E-09	77.61		124	2.08E-09	1.32E-09	1.55E-09	69.06
91	1.66E-09	1.14E-09	1.34E-09	77.36		125	2.49E-09	1.67E-09	1.65E-09	68.81
92	1.77E-09	1.05E-09	1.44E-09	77.11		126	1.78E-09	9.21E-10	1.74E-09	68.55
93	1.49E-09	7.77E-10	1.20E-09	76.86		127	1.77E-09	8.53E-10	1.52E-09	68.30
94	1.86E-09	1.42E-09	1.51E-09	76.60		128	2.03E-09	8.97E-10	1.63E-09	68.05
95	1.76E-09	1.24E-09	1.46E-09	76.35		129	2.21E-09	1.33E-09	1.54E-09	67.80
96	2.09E-09	1.01E-09	1.24E-09	76.10		130	2.21E-09	1.24E-09	1.51E-09	67.55
97	1.65E-09	1.16E-09	1.67E-09	75.85		131	2.09E-09	1.26E-09	1.44E-09	67.30
98	1.73E-09	1.11E-09	1.26E-09	75.60		132	1.93E-09	8.95E-10	1.96E-09	67.04
99	1.87E-09	1.46E-09	1.25E-09	75.35		133	2.21E-09	1.64E-09	1.70E-09	66.79
100	1.69E-09	9.74E-10	1.59E-09	75.09		134	2.17E-09	1.01E-09	2.00E-09	66.54
135	2.22E-09	9.09E-10	1.53E-09	66.29		169	3.44E-09	1.45E-09	2.48E-09	57.74
136	2.22E-09	1.01E-09	1.85E-09	66.04		170	2.84E-09	1.11E-09	2.22E-09	57.48

137	1.95E-09	9.98E-10	1.56E-09	65.79		171	2.76E-09	1.43E-09	2.54E-09	57.23
138	2.30E-09	1.14E-09	1.59E-09	65.53		172	2.77E-09	1.42E-09	2.25E-09	56.98
139	2.15E-09	1.16E-09	1.65E-09	65.28		173	2.84E-09	1.44E-09	2.61E-09	56.73
140	2.34E-09	1.12E-09	1.49E-09	65.03		174	2.74E-09	1.04E-09	2.67E-09	56.48
141	2.42E-09	1.03E-09	1.74E-09	64.78		175	2.77E-09	1.06E-09	2.43E-09	56.23
142	2.34E-09	1.08E-09	1.67E-09	64.53		176	2.84E-09	1.36E-09	2.82E-09	55.97
143	2.38E-09	1.04E-09	1.60E-09	64.28		177	2.71E-09	1.21E-09	2.40E-09	55.72
144	2.42E-09	1.20E-09	2.03E-09	64.03		178	2.98E-09	1.33E-09	2.40E-09	55.47
145	2.36E-09	1.28E-09	1.52E-09	63.77		179	2.99E-09	1.18E-09	2.51E-09	55.22
146	2.63E-09	1.35E-09	1.74E-09	63.52		180	2.70E-09	1.12E-09	2.87E-09	54.97
147	2.19E-09	1.19E-09	2.04E-09	63.27		181	2.66E-09	1.44E-09	2.46E-09	54.72
148	2.50E-09	1.16E-09	1.49E-09	63.02		182	2.72E-09	1.06E-09	2.82E-09	54.47
149	2.51E-09	1.05E-09	2.01E-09	62.77		183	2.94E-09	1.24E-09	2.87E-09	54.21
150	2.29E-09	1.07E-09	2.00E-09	62.52		184	3.07E-09	1.06E-09	2.41E-09	53.96
151	2.73E-09	1.01E-09	1.72E-09	62.26		185	3.22E-09	1.41E-09	3.01E-09	53.71
152	2.29E-09	9.70E-10	2.13E-09	62.01		186	2.96E-09	1.47E-09	2.81E-09	53.46
153	2.46E-09	1.17E-09	2.00E-09	61.76		187	2.55E-09	1.28E-09	3.01E-09	53.21
154	2.40E-09	1.05E-09	1.69E-09	61.51		188	2.79E-09	1.16E-09	2.81E-09	52.96
155	2.85E-09	1.30E-09	1.90E-09	61.26		189	3.29E-09	1.53E-09	2.87E-09	52.70
156	2.88E-09	1.28E-09	2.02E-09	61.01		190	2.91E-09	1.15E-09	3.07E-09	52.45
157	2.41E-09	7.71E-10	1.87E-09	60.75		191	3.15E-09	1.46E-09	2.73E-09	52.20
158	2.56E-09	1.11E-09	1.96E-09	60.50		192	2.72E-09	1.17E-09	3.15E-09	51.95
159	2.61E-09	1.35E-09	2.20E-09	60.25		193	3.37E-09	1.49E-09	2.91E-09	51.70
160	2.57E-09	9.85E-10	2.18E-09	60.00		194	2.91E-09	1.57E-09	3.22E-09	51.45
161	2.64E-09	8.76E-10	1.94E-09	59.75		195	3.01E-09	1.20E-09	3.03E-09	51.19
162	2.23E-09	1.04E-09	1.97E-09	59.50		196	3.20E-09	1.54E-09	3.02E-09	50.94
163	2.59E-09	1.45E-09	1.99E-09	59.25		197	3.38E-09	1.62E-09	3.22E-09	50.69
164	2.68E-09	1.29E-09	2.38E-09	58.99		198	2.96E-09	1.36E-09	3.04E-09	50.44
165	2.96E-09	1.41E-09	2.70E-09	58.74		199	2.90E-09	1.56E-09	3.16E-09	50.19
166	2.50E-09	1.15E-09	2.38E-09	58.49		200	3.08E-09	1.30E-09	3.46E-09	49.94
167	2.52E-09	1.21E-09	2.40E-09	58.24		201	2.89E-09	1.56E-09	3.29E-09	49.69
168	2.39E-09	9.53E-10	2.43E-09	57.99		202	3.10E-09	1.37E-09	3.52E-09	49.43
203	4.19E-09	2.01E-09	3.55E-09	49.18		237	3.35E-09	2.59E-09	6.95E-09	40.63
204	2.93E-09	1.16E-09	3.58E-09	48.93		238	3.47E-09	2.82E-09	6.97E-09	40.38
205	3.11E-09	1.16E-09	3.57E-09	48.68		239	3.55E-09	2.82E-09	7.18E-09	40.13

206	2.86E-09	1.30E-09	3.92E-09	48.43		240	3.75E-09	3.19E-09	7.64E-09	39.87
207	3.24E-09	1.68E-09	3.98E-09	48.18		241	3.45E-09	2.77E-09	8.00E-09	39.62
208	2.85E-09	1.33E-09	4.21E-09	47.92		242	3.93E-09	3.39E-09	7.74E-09	39.37
209	3.17E-09	1.56E-09	4.06E-09	47.67		243	3.68E-09	3.28E-09	8.13E-09	39.12
210	2.96E-09	1.33E-09	3.98E-09	47.42		244	3.76E-09	3.58E-09	7.97E-09	38.87
211	2.94E-09	1.84E-09	3.98E-09	47.17		245	3.77E-09	3.71E-09	7.99E-09	38.62
212	3.03E-09	1.70E-09	3.94E-09	46.92		246	3.50E-09	3.46E-09	8.11E-09	38.36
213	3.12E-09	1.60E-09	4.47E-09	46.67		247	3.43E-09	3.66E-09	8.27E-09	38.11
214	2.83E-09	1.38E-09	4.17E-09	46.42		248	3.45E-09	3.83E-09	8.33E-09	37.86
215	2.70E-09	1.52E-09	4.37E-09	46.16		249	3.28E-09	3.65E-09	8.56E-09	37.61
216	3.16E-09	1.71E-09	3.86E-09	45.91		250	3.30E-09	4.24E-09	8.76E-09	37.36
217	3.12E-09	1.86E-09	4.70E-09	45.66		251	3.24E-09	4.31E-09	8.99E-09	37.11
218	2.80E-09	1.58E-09	4.44E-09	45.41		252	3.60E-09	4.36E-09	9.16E-09	36.86
219	3.14E-09	2.29E-09	4.52E-09	45.16		253	2.96E-09	4.35E-09	9.76E-09	36.60
220	3.09E-09	1.86E-09	4.85E-09	44.91		254	3.19E-09	4.82E-09	1.04E-08	36.35
221	3.26E-09	1.95E-09	4.70E-09	44.65		255	3.55E-09	5.21E-09	1.12E-08	36.10
222	3.64E-09	2.35E-09	5.18E-09	44.40		256	3.75E-09	5.78E-09	1.25E-08	35.85
223	4.00E-09	2.12E-09	5.39E-09	44.15		257	4.04E-09	6.34E-09	1.36E-08	35.60
224	3.93E-09	2.47E-09	5.71E-09	43.90		258	3.74E-09	6.30E-09	1.33E-08	35.35
225	3.55E-09	2.41E-09	5.64E-09	43.65		259	3.48E-09	5.68E-09	1.30E-08	35.09
226	3.73E-09	2.31E-09	6.17E-09	43.40		260	4.00E-09	6.12E-09	1.29E-08	34.84
227	3.57E-09	2.16E-09	6.14E-09	43.14		261	3.50E-09	5.91E-09	1.21E-08	34.59
228	3.63E-09	2.42E-09	6.22E-09	42.89		262	3.26E-09	6.13E-09	1.29E-08	34.34
229	3.95E-09	2.54E-09	6.23E-09	42.64		263	3.56E-09	6.11E-09	1.25E-08	34.09
230	3.45E-09	2.45E-09	6.33E-09	42.39		264	3.40E-09	6.31E-09	1.28E-08	33.84
231	3.04E-09	2.49E-09	6.36E-09	42.14		265	2.93E-09	6.66E-09	1.38E-08	33.58
232	3.49E-09	2.87E-09	6.49E-09	41.89		266	3.07E-09	7.08E-09	1.42E-08	33.33
233	3.40E-09	2.83E-09	6.48E-09	41.64		267	3.42E-09	7.51E-09	1.47E-08	33.08
234	3.04E-09	2.57E-09	6.58E-09	41.38		268	3.65E-09	7.44E-09	1.57E-08	32.83
235	3.64E-09	2.84E-09	6.54E-09	41.13		269	4.17E-09	7.34E-09	1.52E-08	32.58
236	3.68E-09	2.83E-09	6.72E-09	40.88		270	4.36E-09	7.77E-09	1.55E-08	32.33
271	4.01E-09	7.51E-09	1.56E-08	32.08		305	2.17E-09	1.28E-08	1.89E-08	23.52
272	4.06E-09	8.42E-09	1.55E-08	31.82		306	1.38E-09	1.28E-08	1.78E-08	23.27
273	3.32E-09	7.87E-09	1.61E-08	31.57		307	1.53E-09	1.25E-08	1.77E-08	23.02
274	3.23E-09	8.12E-09	1.66E-08	31.32		308	2.37E-09	1.26E-08	1.74E-08	22.77

275	3.40E-09	8.61E-09	1.65E-08	31.07		309	3.33E-09	1.22E-08	1.73E-08	22.52
276	3.35E-09	8.62E-09	1.64E-08	30.82		310	3.49E-09	1.19E-08	1.67E-08	22.26
277	3.30E-09	9.02E-09	1.70E-08	30.57		311	4.00E-09	1.18E-08	1.69E-08	22.01
278	2.52E-09	9.34E-09	1.75E-08	30.31		312	4.10E-09	1.17E-08	1.69E-08	21.76
279	2.49E-09	9.75E-09	1.75E-08	30.06		313	4.27E-09	1.11E-08	1.67E-08	21.51
280	2.17E-09	1.02E-08	1.78E-08	29.81		314	4.60E-09	1.13E-08	1.63E-08	21.26
281	2.18E-09	1.05E-08	1.80E-08	29.56		315	4.28E-09	1.15E-08	1.64E-08	21.01
282	1.75E-09	1.06E-08	1.87E-08	29.31		316	4.09E-09	1.13E-08	1.67E-08	20.75
283	1.98E-09	1.08E-08	1.93E-08	29.06		317	4.22E-09	1.16E-08	1.69E-08	20.50
284	1.99E-09	1.09E-08	1.95E-08	28.81		318	4.12E-09	1.18E-08	1.72E-08	20.25
285	2.33E-09	1.13E-08	1.97E-08	28.55						
286	2.71E-09	1.21E-08	1.97E-08	28.30						
287	1.86E-09	1.18E-08	2.00E-08	28.05						
288	2.02E-09	1.28E-08	2.06E-08	27.80						
289	1.91E-09	1.24E-08	2.08E-08	27.55						
290	1.78E-09	1.32E-08	2.05E-08	27.30						
291	1.54E-09	1.37E-08	2.04E-08	27.04						
292	1.16E-09	1.31E-08	2.07E-08	26.79						
293	8.96E-10	1.35E-08	2.00E-08	26.54						
294	1.23E-09	1.36E-08	2.07E-08	26.29						
295	1.57E-09	1.33E-08	2.00E-08	26.04						
296	1.56E-09	1.27E-08	1.99E-08	25.79						
297	1.96E-09	1.29E-08	1.93E-08	25.53						
298	2.05E-09	1.29E-08	1.86E-08	25.28						
299	2.55E-09	1.26E-08	1.88E-08	25.03						
300	2.68E-09	1.26E-08	1.89E-08	24.78						
301	2.76E-09	1.29E-08	1.86E-08	24.53						
302	2.61E-09	1.29E-08	1.82E-08	24.28						
303	2.16E-09	1.31E-08	1.85E-08	24.03						
304	2.51E-09	1.29E-08	1.89E-08	23.77						

APPENDIX C

Raw reading for the Resistivity 1.14

1000Hz			750 Hz			500 Hz		
Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor1 X	Sensor1 Y	Sensor1 Z
2.23E-09	4.12E-09	2.61E-09	2.60E-09	3.76E-09	2.23E-09	1.76E-09	3.70E-09	1.96E-09
2.30E-09	4.23E-09	2.27E-09	2.39E-09	3.92E-09	2.37E-09	2.07E-09	3.94E-09	2.17E-09
2.27E-09	4.02E-09	2.62E-09	2.56E-09	3.71E-09	2.28E-09	1.97E-09	3.82E-09	1.97E-09
2.32E-09	4.22E-09	2.81E-09	2.95E-09	4.12E-09	2.20E-09	2.59E-09	3.94E-09	1.71E-09
2.64E-09	4.62E-09	2.40E-09	2.73E-09	4.21E-09	2.34E-09	2.07E-09	3.78E-09	2.14E-09
2.32E-09	4.52E-09	2.51E-09	3.18E-09	4.39E-09	2.67E-09	2.36E-09	4.02E-09	1.89E-09
2.02E-09	4.46E-09	2.44E-09	3.16E-09	4.44E-09	1.94E-09	2.26E-09	4.13E-09	2.46E-09
2.19E-09	4.33E-09	2.09E-09	2.92E-09	4.16E-09	2.41E-09	2.24E-09	3.86E-09	1.93E-09
2.42E-09	4.78E-09	2.47E-09	2.68E-09	4.69E-09	2.40E-09	2.24E-09	4.50E-09	1.92E-09
2.17E-09	4.29E-09	2.44E-09	2.43E-09	4.74E-09	2.46E-09	2.32E-09	4.22E-09	2.29E-09
2.21E-09	4.43E-09	2.97E-09	2.26E-09	4.21E-09	2.25E-09	1.92E-09	4.20E-09	2.39E-09
2.56E-09	4.59E-09	2.95E-09	2.39E-09	4.37E-09	2.38E-09	2.08E-09	4.92E-09	2.54E-09
2.59E-09	4.71E-09	2.50E-09	2.83E-09	4.98E-09	2.16E-09	2.20E-09	4.88E-09	2.48E-09
2.60E-09	4.56E-09	2.53E-09	2.64E-09	4.83E-09	2.08E-09	1.77E-09	4.57E-09	2.32E-09
2.22E-09	5.05E-09	2.80E-09	2.46E-09	4.60E-09	2.87E-09	1.75E-09	4.84E-09	2.08E-09
2.17E-09	5.14E-09	2.64E-09	2.48E-09	4.88E-09	2.66E-09	1.90E-09	4.69E-09	2.37E-09
2.34E-09	5.30E-09	2.72E-09	2.04E-09	5.00E-09	2.36E-09	1.95E-09	4.85E-09	2.50E-09
1.90E-09	5.33E-09	2.96E-09	2.27E-09	5.20E-09	2.59E-09	2.26E-09	4.97E-09	2.36E-09
2.41E-09	5.24E-09	2.94E-09	2.29E-09	5.27E-09	2.64E-09	2.17E-09	5.46E-09	2.19E-09
2.29E-09	5.51E-09	3.06E-09	2.24E-09	5.49E-09	2.84E-09	2.35E-09	5.39E-09	2.49E-09
2.31E-09	5.56E-09	3.41E-09	1.82E-09	5.74E-09	2.85E-09	2.31E-09	5.52E-09	2.64E-09
2.23E-09	5.30E-09	3.35E-09	1.87E-09	5.92E-09	3.32E-09	2.46E-09	5.58E-09	2.49E-09
2.40E-09	5.82E-09	3.14E-09	2.26E-09	6.10E-09	2.85E-09	2.28E-09	5.72E-09	2.56E-09
2.57E-09	5.81E-09	3.55E-09	2.16E-09	6.49E-09	3.02E-09	2.00E-09	5.98E-09	2.65E-09
2.46E-09	5.93E-09	2.83E-09	1.91E-09	6.24E-09	3.24E-09	2.23E-09	6.52E-09	3.21E-09
2.53E-09	6.48E-09	3.63E-09	1.79E-09	7.01E-09	2.74E-09	1.74E-09	6.37E-09	3.16E-09
2.37E-09	6.49E-09	3.76E-09	1.70E-09	6.90E-09	3.20E-09	1.96E-09	6.77E-09	2.92E-09
2.27E-09	6.47E-09	3.72E-09	1.73E-09	7.48E-09	3.25E-09	2.04E-09	7.54E-09	3.37E-09
2.69E-09	6.97E-09	3.19E-09	1.63E-09	7.74E-09	3.22E-09	1.77E-09	7.61E-09	3.07E-09
2.15E-09	6.79E-09	4.18E-09	1.61E-09	7.58E-09	3.54E-09	1.47E-09	7.85E-09	3.64E-09
2.09E-09	6.97E-09	3.94E-09	1.53E-09	7.89E-09	3.72E-09	1.64E-09	8.18E-09	3.74E-09
2.06E-09	7.26E-09	3.51E-09	1.25E-09	8.35E-09	3.64E-09	1.65E-09	8.82E-09	4.07E-09
2.07E-09	7.88E-09	3.66E-09	1.25E-09	8.30E-09	4.06E-09	1.51E-09	9.08E-09	3.48E-09
2.06E-09	7.96E-09	3.87E-09	1.19E-09	8.61E-09	3.71E-09	1.46E-09	9.37E-09	4.16E-09
1.76E-09	8.19E-09	3.73E-09	1.04E-09	9.18E-09	4.20E-09	1.83E-09	9.98E-09	4.17E-09
1.52E-09	8.79E-09	3.99E-09	1.49E-09	9.43E-09	4.57E-09	1.40E-09	1.02E-08	4.44E-09
1.51E-09	9.25E-09	4.19E-09	1.08E-09	9.79E-09	4.61E-09	1.49E-09	1.05E-08	4.77E-09
1.40E-09	9.61E-09	4.71E-09	1.33E-09	1.05E-08	4.79E-09	1.51E-09	1.14E-08	4.99E-09
1.52E-09	1.01E-08	4.46E-09	1.47E-09	1.11E-08	5.11E-09	1.64E-09	1.19E-08	5.04E-09
1.69E-09	1.03E-08	5.07E-09	2.25E-09	1.18E-08	5.40E-09	1.25E-09	1.24E-08	5.18E-09
1.74E-09	1.07E-08	5.41E-09	2.23E-09	1.25E-08	5.71E-09	1.28E-09	1.27E-08	5.98E-09
2.25E-09	1.12E-08	5.64E-09	2.67E-09	1.35E-08	5.84E-09	1.38E-09	1.43E-08	6.01E-09
2.41E-09	1.13E-08	6.02E-09	3.23E-09	1.48E-08	6.10E-09	1.69E-09	1.50E-08	6.20E-09
2.57E-09	1.20E-08	6.38E-09	4.16E-09	1.58E-08	6.70E-09	2.09E-09	1.56E-08	7.09E-09
3.00E-09	1.21E-08	6.39E-09	5.13E-09	1.68E-08	6.81E-09	2.51E-09	1.72E-08	7.35E-09
3.16E-09	1.28E-08	6.47E-09	6.38E-09	1.77E-08	7.43E-09	3.76E-09	1.88E-08	8.38E-09
3.28E-09	1.31E-08	6.70E-09	7.23E-09	1.91E-08	7.55E-09	4.53E-09	2.06E-08	8.87E-09
3.63E-09	1.40E-08	6.82E-09	9.02E-09	2.07E-08	7.74E-09	6.20E-09	2.20E-08	9.59E-09

3.93E-09	1.46E-08	7.10E-09	9.75E-09	2.22E-08	8.23E-09	8.60E-09	2.48E-08	9.99E-09
5.03E-09	1.55E-08	7.69E-09	1.17E-08	2.40E-08	8.60E-09	1.07E-08	2.71E-08	1.07E-08
5.63E-09	1.67E-08	7.75E-09	1.24E-08	2.64E-08	9.44E-09	1.49E-08	3.00E-08	1.14E-08
6.44E-09	1.76E-08	8.67E-09	1.48E-08	2.81E-08	1.04E-08	1.92E-08	3.28E-08	1.20E-08
7.75E-09	1.92E-08	9.20E-09	1.79E-08	3.06E-08	1.10E-08	2.35E-08	3.64E-08	1.28E-08
9.32E-09	2.04E-08	9.82E-09	2.10E-08	3.46E-08	1.16E-08	2.92E-08	4.00E-08	1.30E-08
1.13E-08	2.16E-08	1.07E-08	2.57E-08	3.89E-08	1.24E-08	3.41E-08	4.39E-08	1.38E-08
1.36E-08	2.39E-08	1.08E-08	3.17E-08	4.32E-08	1.29E-08	3.99E-08	4.84E-08	1.44E-08
1.65E-08	2.62E-08	1.13E-08	3.99E-08	4.85E-08	1.37E-08	4.63E-08	5.24E-08	1.53E-08
1.96E-08	2.85E-08	1.22E-08	5.02E-08	5.57E-08	1.34E-08	5.25E-08	5.77E-08	1.58E-08
2.34E-08	3.10E-08	1.26E-08	6.26E-08	6.38E-08	1.37E-08	6.02E-08	6.34E-08	1.64E-08
2.69E-08	3.38E-08	1.32E-08	7.92E-08	7.27E-08	1.40E-08	6.93E-08	7.06E-08	1.69E-08
3.03E-08	3.65E-08	1.43E-08	9.59E-08	8.39E-08	1.61E-08	8.19E-08	7.89E-08	1.81E-08
3.31E-08	3.90E-08	1.52E-08	1.15E-07	9.66E-08	1.78E-08	9.66E-08	8.94E-08	1.92E-08
3.61E-08	4.23E-08	1.63E-08	1.39E-07	1.08E-07	2.34E-08	1.18E-07	1.02E-07	2.13E-08
3.96E-08	4.56E-08	1.71E-08	1.65E-07	1.23E-07	3.05E-08	1.46E-07	1.18E-07	2.65E-08
4.31E-08	5.08E-08	1.72E-08	1.95E-07	1.40E-07	3.62E-08	1.80E-07	1.36E-07	3.60E-08
4.96E-08	5.62E-08	1.80E-08	2.35E-07	1.54E-07	4.85E-08	2.25E-07	1.54E-07	4.70E-08
5.81E-08	6.34E-08	1.90E-08	2.86E-07	1.74E-07	6.64E-08	2.81E-07	1.66E-07	6.39E-08
6.90E-08	7.28E-08	2.04E-08	3.52E-07	1.88E-07	9.31E-08	3.50E-07	1.82E-07	8.25E-08
8.44E-08	8.42E-08	2.24E-08	4.33E-07	1.96E-07	1.31E-07	4.33E-07	1.87E-07	9.88E-08
1.05E-07	9.62E-08	2.51E-08	5.36E-07	1.94E-07	1.73E-07	5.34E-07	1.89E-07	1.12E-07
1.30E-07	1.13E-07	2.74E-08	6.63E-07	1.91E-07	2.08E-07	6.53E-07	1.79E-07	1.19E-07
1.58E-07	1.33E-07	3.14E-08	8.11E-07	1.47E-07	2.37E-07	7.90E-07	1.73E-07	1.19E-07
1.92E-07	1.58E-07	3.67E-08	9.90E-07	8.95E-08	2.52E-07	9.42E-07	1.38E-07	1.14E-07
2.34E-07	1.86E-07	4.29E-08	1.16E-06	1.55E-07	2.53E-07	1.12E-06	9.53E-08	9.78E-08
2.87E-07	2.20E-07	5.20E-08	1.33E-06	3.61E-07	2.35E-07	1.30E-06	7.12E-08	6.94E-08
3.50E-07	2.59E-07	6.11E-08	1.44E-06	6.10E-07	1.94E-07	1.44E-06	2.47E-07	4.56E-08
4.39E-07	2.99E-07	6.91E-08	1.46E-06	8.18E-07	1.24E-07	1.52E-06	3.69E-07	6.79E-08
5.67E-07	3.25E-07	7.20E-08	1.61E-06	8.87E-07	1.38E-07	1.59E-06	4.20E-07	5.04E-08
7.42E-07	3.57E-07	7.12E-08	1.69E-06	9.44E-07	1.69E-07	1.62E-06	4.97E-07	2.62E-08
9.75E-07	3.56E-07	6.05E-08	1.74E-06	1.02E-06	1.95E-07	1.66E-06	5.62E-07	1.29E-08
1.25E-06	3.55E-07	3.40E-08				1.71E-06	6.13E-07	3.76E-08
1.55E-06	3.06E-07	6.30E-08				1.74E-06	6.33E-07	5.14E-08
1.72E-06	1.91E-07	7.71E-08				1.74E-06	6.34E-07	5.21E-08
1.86E-06	1.13E-07	4.20E-08				1.77E-06	6.11E-07	4.64E-08
1.99E-06	1.38E-07	7.94E-08						
2.04E-06	4.74E-07	1.56E-07						

APPENDIX D

Raw reading for the Resistivity 1.32

1000 Hz			750 Hz			500 Hz		
Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor1 X	Sensor1 Y	Sensor1 Z
5.46E-09	6.60E-09	3.27E-09	4.37E-09	6.33E-09	2.53E-09	4.46E-09	5.85E-09	2.39E-09
5.42E-09	6.33E-09	3.17E-09	4.73E-09	6.08E-09	3.17E-09	5.26E-09	6.27E-09	2.52E-09
5.54E-09	6.94E-09	3.00E-09	4.79E-09	6.80E-09	2.63E-09	5.02E-09	6.22E-09	2.34E-09
5.23E-09	6.72E-09	3.53E-09	4.77E-09	6.42E-09	2.78E-09	5.21E-09	6.35E-09	2.23E-09
5.16E-09	6.89E-09	3.40E-09	5.23E-09	6.52E-09	2.46E-09	5.30E-09	6.45E-09	2.54E-09
5.86E-09	7.29E-09	3.15E-09	4.92E-09	6.60E-09	2.84E-09	5.20E-09	6.84E-09	2.61E-09
6.03E-09	7.29E-09	3.25E-09	5.11E-09	7.18E-09	3.01E-09	5.45E-09	7.04E-09	2.69E-09
5.87E-09	7.43E-09	3.30E-09	4.84E-09	6.84E-09	3.34E-09	5.56E-09	6.80E-09	3.23E-09
5.69E-09	7.31E-09	3.58E-09	5.25E-09	7.47E-09	3.40E-09	5.56E-09	7.27E-09	3.37E-09
6.39E-09	7.78E-09	3.74E-09	5.46E-09	7.50E-09	3.40E-09	5.94E-09	7.34E-09	2.81E-09
6.35E-09	7.63E-09	3.54E-09	5.08E-09	7.08E-09	3.72E-09	5.77E-09	7.44E-09	3.68E-09
6.97E-09	7.79E-09	3.83E-09	5.00E-09	7.20E-09	3.66E-09	5.74E-09	7.36E-09	3.69E-09
6.92E-09	8.37E-09	3.44E-09	5.39E-09	7.48E-09	3.52E-09	6.07E-09	8.18E-09	3.47E-09
6.82E-09	8.07E-09	3.60E-09	5.16E-09	7.77E-09	3.41E-09	6.38E-09	7.71E-09	3.66E-09
7.14E-09	8.23E-09	3.67E-09	5.13E-09	7.71E-09	3.77E-09	6.25E-09	8.60E-09	3.47E-09
7.77E-09	8.43E-09	4.10E-09	6.16E-09	8.57E-09	4.24E-09	6.36E-09	8.37E-09	3.61E-09
7.92E-09	8.90E-09	3.94E-09	5.50E-09	8.07E-09	4.05E-09	6.53E-09	8.02E-09	3.55E-09
7.80E-09	9.10E-09	4.23E-09	6.07E-09	8.34E-09	3.64E-09	6.88E-09	8.38E-09	3.68E-09
8.03E-09	9.56E-09	4.54E-09	6.20E-09	8.50E-09	3.62E-09	7.35E-09	8.55E-09	3.82E-09
8.73E-09	9.90E-09	4.71E-09	6.57E-09	8.83E-09	4.03E-09	7.16E-09	8.44E-09	3.86E-09
9.03E-09	9.96E-09	4.72E-09	6.55E-09	9.56E-09	4.30E-09	7.30E-09	8.68E-09	3.39E-09
9.31E-09	1.07E-08	5.08E-09	6.60E-09	9.42E-09	4.98E-09	7.74E-09	8.68E-09	3.61E-09
9.93E-09	1.11E-08	5.66E-09	7.13E-09	9.64E-09	4.84E-09	8.11E-09	8.84E-09	3.29E-09
1.06E-08	1.21E-08	5.20E-09	7.43E-09	1.02E-08	5.38E-09	8.20E-09	9.58E-09	3.54E-09
1.04E-08	1.22E-08	6.30E-09	7.85E-09	1.07E-08	5.55E-09	8.50E-09	9.41E-09	3.36E-09
1.07E-08	1.27E-08	6.29E-09	8.05E-09	1.09E-08	5.46E-09	9.64E-09	9.84E-09	3.74E-09
1.16E-08	1.30E-08	6.41E-09	8.32E-09	1.10E-08	5.89E-09	9.73E-09	1.04E-08	3.79E-09
1.22E-08	1.32E-08	7.15E-09	8.56E-09	1.16E-08	5.96E-09	1.03E-08	1.11E-08	4.01E-09
1.29E-08	1.41E-08	7.95E-09	8.93E-09	1.20E-08	6.66E-09	1.05E-08	1.09E-08	4.28E-09
1.33E-08	1.45E-08	7.77E-09	9.50E-09	1.27E-08	7.23E-09	1.11E-08	1.21E-08	4.59E-09
1.37E-08	1.50E-08	8.67E-09	1.02E-08	1.36E-08	7.47E-09	1.19E-08	1.23E-08	5.09E-09
1.44E-08	1.59E-08	9.10E-09	1.07E-08	1.43E-08	8.49E-09	1.25E-08	1.34E-08	5.32E-09
1.51E-08	1.65E-08	9.77E-09	1.13E-08	1.53E-08	8.33E-09	1.31E-08	1.36E-08	5.71E-09
1.69E-08	1.70E-08	1.04E-08	1.21E-08	1.64E-08	9.25E-09	1.37E-08	1.41E-08	5.93E-09
1.77E-08	1.82E-08	1.09E-08	1.27E-08	1.71E-08	1.01E-08	1.43E-08	1.46E-08	6.44E-09
1.85E-08	1.91E-08	1.17E-08	1.40E-08	1.79E-08	1.07E-08	1.45E-08	1.51E-08	6.91E-09
1.93E-08	2.03E-08	1.29E-08	1.47E-08	1.81E-08	1.13E-08	1.56E-08	1.60E-08	7.54E-09
2.07E-08	2.15E-08	1.32E-08	1.57E-08	1.97E-08	1.13E-08	1.67E-08	1.65E-08	7.63E-09
2.24E-08	2.22E-08	1.46E-08	1.69E-08	2.03E-08	1.24E-08	1.78E-08	1.74E-08	8.18E-09
2.41E-08	2.34E-08	1.59E-08	1.83E-08	2.10E-08	1.27E-08	1.85E-08	1.80E-08	8.91E-09
2.63E-08	2.47E-08	1.67E-08	2.01E-08	2.23E-08	1.37E-08	1.97E-08	1.89E-08	9.56E-09
2.72E-08	2.50E-08	1.76E-08	2.19E-08	2.32E-08	1.48E-08	2.15E-08	1.95E-08	1.00E-08
2.87E-08	2.64E-08	1.86E-08	2.41E-08	2.50E-08	1.54E-08	2.28E-08	2.05E-08	1.06E-08
3.10E-08	2.82E-08	1.98E-08	2.56E-08	2.62E-08	1.68E-08	2.48E-08	2.15E-08	1.17E-08
3.26E-08	2.90E-08	2.11E-08	2.76E-08	2.77E-08	1.86E-08	2.63E-08	2.21E-08	1.22E-08
3.52E-08	2.94E-08	2.23E-08	3.11E-08	2.96E-08	1.99E-08	2.85E-08	2.31E-08	1.32E-08
3.88E-08	3.02E-08	2.35E-08	3.34E-08	3.13E-08	2.18E-08	3.09E-08	2.46E-08	1.45E-08
4.11E-08	3.18E-08	2.47E-08	3.66E-08	3.34E-08	2.42E-08	3.31E-08	2.55E-08	1.57E-08

4.42E-08	3.37E-08	2.66E-08	4.04E-08	3.47E-08	2.59E-08	3.63E-08	2.75E-08	1.64E-08
4.80E-08	3.60E-08	2.82E-08	4.49E-08	3.80E-08	2.80E-08	3.93E-08	2.86E-08	1.82E-08
5.23E-08	3.84E-08	3.11E-08	4.96E-08	4.00E-08	3.09E-08	4.35E-08	3.01E-08	1.98E-08
5.76E-08	4.10E-08	3.42E-08	5.56E-08	4.27E-08	3.30E-08	4.73E-08	3.22E-08	2.12E-08
6.48E-08	4.36E-08	3.78E-08	6.29E-08	4.56E-08	3.59E-08	5.08E-08	3.36E-08	2.42E-08
7.34E-08	4.73E-08	4.14E-08	7.09E-08	4.81E-08	3.95E-08	5.67E-08	3.59E-08	2.60E-08
8.12E-08	5.09E-08	4.71E-08	8.07E-08	5.15E-08	4.37E-08	6.05E-08	3.80E-08	2.86E-08
9.16E-08	5.62E-08	5.26E-08	9.16E-08	5.61E-08	4.83E-08	6.60E-08	3.96E-08	3.10E-08
1.04E-07	6.24E-08	5.97E-08	1.05E-07	6.00E-08	5.29E-08	7.18E-08	4.11E-08	3.34E-08
1.21E-07	6.67E-08	6.70E-08	1.21E-07	6.43E-08	5.95E-08	7.86E-08	4.26E-08	3.70E-08
1.41E-07	7.18E-08	7.60E-08	1.40E-07	6.85E-08	6.57E-08	8.59E-08	4.49E-08	4.03E-08
1.65E-07	7.89E-08	8.49E-08	1.63E-07	7.41E-08	7.32E-08	9.39E-08	4.71E-08	4.41E-08
1.92E-07	8.73E-08	9.57E-08	1.89E-07	7.98E-08	8.00E-08	1.05E-07	4.89E-08	4.75E-08
2.25E-07	9.63E-08	1.09E-07	2.21E-07	8.69E-08	8.86E-08	1.16E-07	5.08E-08	5.23E-08
2.62E-07	1.05E-07	1.20E-07	2.58E-07	9.16E-08	9.77E-08	1.29E-07	5.36E-08	5.69E-08
3.06E-07	1.13E-07	1.31E-07	3.08E-07	9.91E-08	1.05E-07	1.43E-07	5.63E-08	6.30E-08
3.55E-07	1.18E-07	1.37E-07	3.67E-07	1.04E-07	1.10E-07	1.60E-07	5.91E-08	6.89E-08
4.08E-07	1.18E-07	1.40E-07	4.36E-07	1.07E-07	1.11E-07	1.77E-07	6.19E-08	7.55E-08
4.68E-07	1.16E-07	1.39E-07	5.12E-07	1.06E-07	1.06E-07	1.98E-07	6.41E-08	8.25E-08
5.31E-07	1.06E-07	1.30E-07	5.93E-07	9.42E-08	9.09E-08	2.23E-07	6.63E-08	8.97E-08
5.99E-07	8.51E-08	1.12E-07	6.63E-07	5.81E-08	5.28E-08	2.52E-07	6.65E-08	9.66E-08
6.66E-07	4.67E-08	7.46E-08	7.15E-07	1.12E-07	1.00E-07	2.85E-07	6.66E-08	1.03E-07
7.11E-07	1.33E-07	7.53E-08	7.35E-07	2.46E-07	2.03E-07	3.22E-07	6.54E-08	1.10E-07
7.32E-07	2.71E-07	1.75E-07	7.38E-07	3.69E-07	2.91E-07	3.66E-07	6.31E-08	1.16E-07
7.33E-07	4.08E-07	2.71E-07	7.25E-07	4.74E-07	3.62E-07	4.14E-07	5.89E-08	1.17E-07
7.15E-07	5.13E-07	3.39E-07	6.98E-07	5.41E-07	4.06E-07	4.63E-07	4.78E-08	1.17E-07
6.77E-07	5.88E-07	3.84E-07	6.58E-07	5.80E-07	4.22E-07	5.12E-07	3.20E-08	1.11E-07
6.38E-07	6.36E-07	4.09E-07	6.18E-07	6.09E-07	4.31E-07	5.59E-07	2.92E-08	9.85E-08
5.93E-07	6.64E-07	4.15E-07	5.84E-07	6.21E-07	4.28E-07	5.98E-07	8.30E-08	7.57E-08
5.54E-07	6.89E-07	4.28E-07	5.59E-07	6.28E-07	4.25E-07	6.34E-07	1.43E-07	4.00E-08
5.25E-07	7.18E-07	4.45E-07	5.40E-07	6.41E-07	4.17E-07	6.54E-07	2.11E-07	4.98E-08
						6.63E-07	2.92E-07	1.05E-07
						6.64E-07	3.58E-07	1.56E-07
						6.63E-07	4.24E-07	2.08E-07
						6.58E-07	4.81E-07	2.50E-07
						6.45E-07	5.24E-07	2.86E-07
						6.33E-07	5.47E-07	3.09E-07
						6.41E-07	5.52E-07	3.19E-07
						6.50E-07	5.46E-07	3.19E-07
						6.66E-07	5.36E-07	3.19E-07
						6.81E-07	5.30E-07	3.13E-07

APPENDIX E

Raw reading for the Resistivity 1.52

Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor1 X	Sensor1 Y	Sensor1 Z
3.88E-09	5.67E-09	4.08E-09	3.83E-09	5.40E-09	3.44E-09	3.94E-09	5.53E-09	3.71E-09
3.86E-09	5.73E-09	4.06E-09	3.87E-09	4.90E-09	3.91E-09	3.95E-09	5.70E-09	3.68E-09
3.90E-09	5.88E-09	4.19E-09	4.13E-09	5.08E-09	3.77E-09	4.08E-09	5.59E-09	3.93E-09
3.97E-09	6.03E-09	4.79E-09	4.34E-09	5.64E-09	3.89E-09	4.25E-09	5.85E-09	3.54E-09
4.01E-09	6.40E-09	5.01E-09	4.03E-09	5.53E-09	3.84E-09	4.22E-09	6.32E-09	4.25E-09
4.26E-09	6.38E-09	4.51E-09	4.44E-09	5.71E-09	4.02E-09	4.04E-09	6.13E-09	4.16E-09
4.52E-09	6.81E-09	4.80E-09	4.05E-09	5.86E-09	4.12E-09	4.31E-09	6.38E-09	4.52E-09
3.89E-09	6.80E-09	5.09E-09	5.12E-09	6.04E-09	4.00E-09	4.68E-09	6.65E-09	4.21E-09
4.46E-09	6.98E-09	4.81E-09	4.60E-09	6.16E-09	4.65E-09	4.95E-09	6.71E-09	4.77E-09
4.07E-09	7.26E-09	5.57E-09	4.78E-09	6.66E-09	4.30E-09	4.51E-09	6.99E-09	4.81E-09
4.75E-09	7.91E-09	5.58E-09	5.00E-09	6.78E-09	4.69E-09	4.90E-09	7.35E-09	4.90E-09
4.83E-09	8.28E-09	5.81E-09	4.89E-09	6.93E-09	4.89E-09	5.09E-09	7.80E-09	5.16E-09
5.27E-09	8.81E-09	6.35E-09	5.13E-09	7.34E-09	4.76E-09	5.40E-09	8.05E-09	5.01E-09
5.11E-09	8.96E-09	6.38E-09	5.19E-09	7.65E-09	5.25E-09	5.22E-09	8.52E-09	5.56E-09
5.79E-09	9.56E-09	6.95E-09	5.47E-09	7.92E-09	5.70E-09	5.36E-09	8.50E-09	5.96E-09
5.59E-09	9.83E-09	6.91E-09	5.43E-09	8.08E-09	5.69E-09	5.77E-09	9.26E-09	6.14E-09
6.01E-09	1.08E-08	7.59E-09	5.65E-09	8.53E-09	6.02E-09	6.36E-09	1.02E-08	6.59E-09
5.91E-09	1.10E-08	8.06E-09	6.25E-09	9.24E-09	6.37E-09	6.21E-09	1.02E-08	7.31E-09
6.47E-09	1.15E-08	8.35E-09	6.43E-09	9.41E-09	6.49E-09	6.66E-09	1.10E-08	7.80E-09
6.58E-09	1.23E-08	9.23E-09	6.25E-09	9.74E-09	7.19E-09	6.95E-09	1.13E-08	7.90E-09
7.33E-09	1.30E-08	9.51E-09	6.50E-09	1.04E-08	7.41E-09	7.58E-09	1.22E-08	8.59E-09
7.76E-09	1.39E-08	9.75E-09	6.82E-09	1.08E-08	8.36E-09	8.29E-09	1.36E-08	8.97E-09
8.68E-09	1.49E-08	1.05E-08	7.62E-09	1.13E-08	8.75E-09	8.68E-09	1.37E-08	9.79E-09
8.84E-09	1.57E-08	1.17E-08	8.11E-09	1.23E-08	8.77E-09	9.35E-09	1.42E-08	1.03E-08
1.01E-08	1.69E-08	1.29E-08	8.29E-09	1.30E-08	8.96E-09	1.01E-08	1.52E-08	1.13E-08
1.06E-08	1.80E-08	1.37E-08	8.90E-09	1.33E-08	9.67E-09	1.12E-08	1.64E-08	1.21E-08
1.14E-08	1.96E-08	1.52E-08	1.00E-08	1.47E-08	1.05E-08	1.22E-08	1.73E-08	1.31E-08
1.22E-08	2.13E-08	1.70E-08	1.07E-08	1.54E-08	1.12E-08	1.37E-08	1.89E-08	1.48E-08
1.34E-08	2.33E-08	1.88E-08	1.16E-08	1.65E-08	1.24E-08	1.54E-08	2.01E-08	1.60E-08
1.46E-08	2.50E-08	2.13E-08	1.23E-08	1.74E-08	1.40E-08	1.75E-08	2.19E-08	1.75E-08
1.62E-08	2.84E-08	2.40E-08	1.37E-08	1.90E-08	1.53E-08	1.95E-08	2.41E-08	1.93E-08
1.71E-08	3.09E-08	2.69E-08	1.52E-08	2.06E-08	1.60E-08	2.22E-08	2.66E-08	2.21E-08
1.87E-08	3.41E-08	3.06E-08	1.68E-08	2.21E-08	1.78E-08	2.47E-08	2.90E-08	2.48E-08
2.05E-08	3.86E-08	3.50E-08	1.94E-08	2.46E-08	2.03E-08	2.87E-08	3.29E-08	2.78E-08
2.33E-08	4.43E-08	4.02E-08	2.14E-08	2.74E-08	2.28E-08	3.28E-08	3.66E-08	3.19E-08
2.63E-08	5.12E-08	4.84E-08	2.44E-08	3.01E-08	2.61E-08	3.86E-08	4.10E-08	3.78E-08
3.03E-08	5.93E-08	5.66E-08	2.89E-08	3.43E-08	2.94E-08	4.57E-08	4.69E-08	4.43E-08
3.37E-08	7.15E-08	6.75E-08	3.26E-08	3.80E-08	3.57E-08	5.32E-08	5.33E-08	5.21E-08
3.83E-08	8.62E-08	8.03E-08	3.77E-08	4.31E-08	4.08E-08	6.23E-08	6.09E-08	6.18E-08
4.51E-08	1.04E-07	9.90E-08	4.42E-08	4.90E-08	4.70E-08	7.37E-08	7.06E-08	7.26E-08
5.42E-08	1.29E-07	1.22E-07	5.16E-08	5.44E-08	5.44E-08	8.72E-08	8.08E-08	8.52E-08
6.67E-08	1.64E-07	1.55E-07	5.91E-08	6.08E-08	6.22E-08	1.06E-07	9.22E-08	9.87E-08
9.09E-08	2.12E-07	1.97E-07	6.95E-08	6.80E-08	6.97E-08	1.29E-07	1.06E-07	1.17E-07
1.32E-07	2.88E-07	2.59E-07	8.20E-08	7.53E-08	8.03E-08	1.60E-07	1.22E-07	1.37E-07
1.98E-07	4.06E-07	3.64E-07	9.98E-08	8.36E-08	9.17E-08	1.99E-07	1.40E-07	1.60E-07
3.47E-07	6.35E-07	5.35E-07	1.23E-07	9.30E-08	1.05E-07	2.54E-07	1.61E-07	1.85E-07
7.12E-07	1.12E-06	8.42E-07	1.51E-07	1.02E-07	1.23E-07	3.26E-07	1.87E-07	2.10E-07
1.33E-06	2.13E-06	1.29E-06	1.91E-07	1.15E-07	1.42E-07	4.24E-07	2.07E-07	2.30E-07
1.34E-06	2.12E-06	1.32E-06	2.44E-07	1.31E-07	1.63E-07	5.42E-07	2.17E-07	2.34E-07

1.33E-06	1.99E-06	1.27E-06	3.12E-07	1.51E-07	1.85E-07	6.72E-07	2.11E-07	2.27E-07
1.28E-06	1.74E-06	1.09E-06	4.01E-07	1.65E-07	2.02E-07	7.83E-07	1.76E-07	1.82E-07
1.18E-06	9.11E-07	7.15E-07	5.07E-07	1.68E-07	2.05E-07	8.28E-07	1.76E-07	8.96E-08
1.14E-06	1.07E-06	9.45E-07	6.19E-07	1.63E-07	2.00E-07	8.28E-07	4.02E-07	2.44E-07
9.50E-07	1.07E-06	9.05E-07	7.10E-07	1.23E-07	1.63E-07	7.98E-07	5.59E-07	3.47E-07
6.68E-07	1.01E-06	7.43E-07	7.53E-07	1.48E-07	7.72E-08	7.19E-07	6.36E-07	3.96E-07
5.29E-07	9.35E-07	6.64E-07	7.55E-07	3.29E-07	1.65E-07	6.34E-07	6.70E-07	4.21E-07
4.29E-07	9.33E-07	6.14E-07	7.40E-07	4.67E-07	2.56E-07	5.56E-07	6.97E-07	4.34E-07
3.53E-07	9.34E-07	5.78E-07	6.89E-07	5.56E-07	3.18E-07	4.89E-07	7.27E-07	4.43E-07
3.14E-07	9.23E-07	5.55E-07	6.25E-07	6.09E-07	3.55E-07	4.29E-07	7.45E-07	4.46E-07
3.04E-07	9.07E-07	5.58E-07	5.60E-07	6.49E-07	3.85E-07	3.70E-07	7.43E-07	4.48E-07
3.18E-07	9.02E-07	5.72E-07	5.03E-07	6.84E-07	4.15E-07	3.20E-07	7.39E-07	4.51E-07
			4.47E-07	6.98E-07	4.32E-07	2.77E-07	7.35E-07	4.54E-07
			3.90E-07	6.98E-07	4.37E-07	2.38E-07	7.38E-07	4.56E-07
			3.40E-07	6.97E-07	4.41E-07	2.08E-07	7.39E-07	4.58E-07
			2.98E-07	6.94E-07	4.41E-07	1.88E-07	7.39E-07	4.59E-07
			2.68E-07	6.96E-07	4.41E-07	1.87E-07	7.43E-07	4.59E-07
			2.48E-07	7.00E-07	4.39E-07	1.92E-07	7.50E-07	4.57E-07

APPENDIX F

Raw reading for the Resistivity 1.60

Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor1 X	Sensor1 Y	Sensor1 Z
6.81E-09	5.34E-09	2.38E-09	6.25E-09	5.03E-09	2.78E-09	5.95E-09	4.35E-09	2.78E-09
6.94E-09	5.12E-09	2.53E-09	6.39E-09	4.75E-09	3.05E-09	5.86E-09	4.54E-09	2.87E-09
7.23E-09	5.32E-09	2.30E-09	6.38E-09	5.00E-09	3.09E-09	6.02E-09	4.48E-09	3.06E-09
7.26E-09	4.91E-09	2.87E-09	7.21E-09	5.58E-09	3.14E-09	6.28E-09	4.54E-09	2.90E-09
6.74E-09	4.99E-09	2.58E-09	6.64E-09	4.76E-09	3.10E-09	6.32E-09	4.47E-09	3.08E-09
7.23E-09	5.24E-09	2.59E-09	7.21E-09	5.29E-09	3.36E-09	6.48E-09	4.69E-09	3.13E-09
7.35E-09	5.28E-09	2.61E-09	7.16E-09	5.23E-09	3.43E-09	6.61E-09	4.74E-09	3.19E-09
7.90E-09	5.48E-09	2.65E-09	7.78E-09	5.84E-09	3.26E-09	6.92E-09	4.80E-09	3.59E-09
7.78E-09	5.42E-09	2.80E-09	7.74E-09	5.79E-09	3.43E-09	7.07E-09	5.04E-09	3.57E-09
8.08E-09	5.83E-09	2.73E-09	7.88E-09	5.49E-09	3.75E-09	7.64E-09	5.64E-09	3.65E-09
8.09E-09	5.67E-09	2.90E-09	8.16E-09	6.06E-09	3.92E-09	7.82E-09	5.64E-09	4.20E-09
8.29E-09	5.62E-09	3.01E-09	8.70E-09	6.23E-09	4.16E-09	8.17E-09	5.60E-09	4.30E-09
8.82E-09	6.16E-09	3.56E-09	8.57E-09	5.88E-09	4.20E-09	8.61E-09	6.17E-09	4.87E-09
9.25E-09	6.45E-09	3.49E-09	8.87E-09	6.28E-09	5.07E-09	9.38E-09	6.50E-09	5.17E-09
9.58E-09	6.39E-09	3.71E-09	9.53E-09	6.53E-09	4.85E-09	9.69E-09	6.81E-09	5.62E-09
9.99E-09	6.71E-09	3.78E-09	9.77E-09	7.03E-09	5.20E-09	1.00E-08	7.08E-09	6.00E-09
9.84E-09	6.65E-09	4.41E-09	1.04E-08	7.20E-09	5.49E-09	1.05E-08	6.91E-09	6.64E-09
1.09E-08	7.14E-09	4.41E-09	1.05E-08	7.24E-09	5.94E-09	1.13E-08	7.28E-09	7.13E-09
1.11E-08	7.11E-09	5.27E-09	1.11E-08	7.73E-09	6.21E-09	1.20E-08	8.14E-09	7.98E-09
1.16E-08	7.56E-09	5.15E-09	1.13E-08	7.94E-09	6.21E-09	1.27E-08	8.42E-09	8.23E-09
1.24E-08	7.52E-09	5.60E-09	1.23E-08	8.45E-09	6.99E-09	1.30E-08	8.80E-09	9.01E-09
1.28E-08	8.02E-09	6.10E-09	1.29E-08	8.66E-09	7.30E-09	1.46E-08	9.92E-09	1.01E-08
1.35E-08	8.29E-09	6.79E-09	1.39E-08	8.90E-09	8.09E-09	1.52E-08	9.81E-09	1.08E-08
1.45E-08	8.92E-09	7.23E-09	1.44E-08	9.66E-09	8.28E-09	1.62E-08	1.07E-08	1.22E-08
1.51E-08	9.05E-09	7.92E-09	1.48E-08	9.63E-09	8.92E-09	1.78E-08	1.15E-08	1.35E-08
1.64E-08	9.87E-09	8.26E-09	1.60E-08	9.75E-09	1.02E-08	1.92E-08	1.24E-08	1.48E-08
1.84E-08	1.06E-08	9.30E-09	1.72E-08	1.03E-08	1.07E-08	2.04E-08	1.29E-08	1.67E-08
1.85E-08	1.09E-08	1.06E-08	1.82E-08	1.08E-08	1.14E-08	2.26E-08	1.44E-08	1.87E-08
2.00E-08	1.13E-08	1.11E-08	1.98E-08	1.15E-08	1.25E-08	2.52E-08	1.58E-08	2.06E-08
2.15E-08	1.23E-08	1.25E-08	2.18E-08	1.24E-08	1.37E-08	2.74E-08	1.70E-08	2.40E-08
2.33E-08	1.30E-08	1.37E-08	2.38E-08	1.34E-08	1.47E-08	3.09E-08	1.83E-08	2.69E-08
2.57E-08	1.36E-08	1.55E-08	2.60E-08	1.43E-08	1.66E-08	3.35E-08	2.01E-08	3.03E-08
2.81E-08	1.47E-08	1.73E-08	2.85E-08	1.57E-08	1.80E-08	3.76E-08	2.23E-08	3.45E-08
3.03E-08	1.56E-08	1.92E-08	3.13E-08	1.67E-08	2.12E-08	4.34E-08	2.48E-08	3.96E-08
3.26E-08	1.67E-08	2.12E-08	3.49E-08	1.75E-08	2.39E-08	5.09E-08	2.81E-08	4.50E-08
3.60E-08	1.82E-08	2.39E-08	4.01E-08	1.94E-08	2.71E-08	6.11E-08	3.16E-08	5.32E-08
3.92E-08	1.90E-08	2.65E-08	4.49E-08	2.14E-08	3.04E-08	7.21E-08	3.75E-08	6.32E-08
4.37E-08	2.04E-08	2.89E-08	5.04E-08	2.40E-08	3.57E-08	8.68E-08	4.54E-08	7.56E-08
4.86E-08	2.17E-08	3.19E-08	5.73E-08	2.66E-08	4.14E-08	1.08E-07	5.38E-08	9.19E-08
5.47E-08	2.40E-08	3.49E-08	6.72E-08	2.99E-08	4.83E-08	1.36E-07	6.50E-08	1.10E-07
6.15E-08	2.52E-08	3.97E-08	7.90E-08	3.34E-08	5.49E-08	1.77E-07	8.02E-08	1.30E-07
6.99E-08	2.71E-08	4.40E-08	9.39E-08	3.79E-08	6.42E-08	2.31E-07	9.94E-08	1.49E-07
8.23E-08	2.98E-08	5.05E-08	1.13E-07	4.41E-08	7.54E-08	3.05E-07	1.22E-07	1.61E-07
9.88E-08	3.25E-08	5.70E-08	1.37E-07	5.19E-08	8.76E-08	3.90E-07	1.31E-07	1.62E-07
1.16E-07	3.60E-08	6.58E-08	1.70E-07	6.21E-08	1.02E-07	4.81E-07	1.34E-07	1.45E-07
1.38E-07	4.09E-08	7.56E-08	2.14E-07	7.27E-08	1.16E-07	5.54E-07	1.20E-07	1.00E-07
1.63E-07	4.52E-08	8.59E-08	2.74E-07	8.45E-08	1.24E-07	5.95E-07	7.43E-08	1.00E-07
1.98E-07	4.92E-08	9.26E-08	3.54E-07	9.78E-08	1.25E-07	6.04E-07	1.21E-07	2.09E-07
2.37E-07	4.96E-08	9.67E-08	4.54E-07	9.99E-08	1.19E-07	6.04E-07	2.24E-07	2.92E-07

2.82E-07	5.06E-08	9.79E-08	5.53E-07	9.32E-08	8.06E-08	5.80E-07	3.02E-07	3.49E-07
3.31E-07	4.96E-08	9.56E-08	6.22E-07	7.90E-08	1.78E-07	5.48E-07	3.74E-07	3.85E-07
3.82E-07	4.41E-08	8.77E-08	6.35E-07	2.46E-07	3.42E-07	5.12E-07	4.31E-07	4.03E-07
4.31E-07	3.07E-08	6.98E-08	6.28E-07	3.86E-07	4.52E-07	4.75E-07	4.70E-07	4.10E-07
4.74E-07	4.02E-08	3.39E-08	5.83E-07	4.65E-07	4.92E-07	4.39E-07	5.00E-07	4.09E-07
5.08E-07	9.92E-08	7.93E-08	5.15E-07	5.07E-07	5.03E-07	4.06E-07	5.23E-07	4.00E-07
5.25E-07	1.69E-07	1.47E-07	4.59E-07	5.31E-07	5.00E-07	3.82E-07	5.51E-07	3.87E-07
5.29E-07	2.44E-07	2.11E-07	4.15E-07	5.41E-07	4.85E-07	3.64E-07	5.83E-07	3.73E-07
5.28E-07	3.10E-07	2.60E-07	3.83E-07	5.48E-07	4.59E-07	3.48E-07	6.14E-07	3.54E-07
5.13E-07	3.62E-07	2.91E-07	3.62E-07	5.62E-07	4.35E-07	3.35E-07	6.37E-07	3.33E-07
4.94E-07	4.08E-07	3.09E-07	3.46E-07	5.76E-07	4.08E-07	3.24E-07	6.65E-07	3.17E-07
4.70E-07	4.44E-07	3.14E-07	3.39E-07	5.89E-07	3.83E-07	3.10E-07	6.92E-07	3.12E-07
4.51E-07	4.69E-07	3.14E-07	3.35E-07	6.04E-07	3.59E-07	2.91E-07	7.11E-07	3.18E-07
4.32E-07	4.95E-07	3.08E-07	3.32E-07	6.13E-07	3.32E-07	2.76E-07	7.25E-07	3.27E-07
4.15E-07	5.17E-07	2.99E-07	3.30E-07	6.23E-07	3.14E-07	2.67E-07	7.37E-07	3.39E-07
4.02E-07	5.35E-07	2.85E-07	3.27E-07	6.37E-07	2.99E-07	2.59E-07	7.45E-07	3.51E-07
3.89E-07	5.56E-07	2.82E-07	3.18E-07	6.38E-07	2.98E-07	2.50E-07	7.48E-07	3.62E-07
3.76E-07	5.81E-07	2.83E-07	3.05E-07	6.38E-07	2.99E-07	2.45E-07	7.44E-07	3.65E-07
3.58E-07	5.96E-07	2.89E-07	2.97E-07	6.34E-07	3.09E-07			
3.46E-07	6.07E-07	2.97E-07	2.94E-07	6.51E-07	3.13E-07			
3.36E-07	6.11E-07	3.06E-07	2.85E-07	6.63E-07	3.13E-07			
3.27E-07	6.19E-07	3.13E-07	2.82E-07	6.79E-07	3.13E-07			
3.14E-07	6.29E-07	3.15E-07						
3.02E-07	6.40E-07	3.15E-07						
2.93E-07	6.51E-07	3.11E-07						

APPENDIX G

**Raw reading for the 3 Detector
with Cooking Oil**

Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor2 X	Sensor2 Y	Sensor2 Z	Sensor3 X	Sensor3 Y	Sensor3 Z
1.38E-09	1.17E-09	9.06E-10	1.68E-09	1.48E-09	1.29E-09	1.63E-08	5.46E-09	1.58E-09
1.34E-09	9.33E-10	1.02E-09	1.46E-09	1.05E-09	1.15E-09	1.60E-08	5.64E-09	1.49E-09
1.16E-09	1.00E-09	1.16E-09	1.50E-09	7.28E-10	6.50E-10	1.59E-08	5.69E-09	1.38E-09
1.38E-09	1.48E-09	1.05E-09	1.21E-09	7.23E-10	8.80E-10	1.61E-08	5.64E-09	1.50E-09
1.48E-09	1.28E-09	1.05E-09	1.27E-09	1.06E-09	8.19E-10	1.59E-08	5.15E-09	1.20E-09
1.14E-09	9.61E-10	1.07E-09	1.26E-09	1.01E-09	1.05E-09	1.61E-08	5.48E-09	1.44E-09
1.06E-09	9.11E-10	1.06E-09	1.66E-09	1.13E-09	8.03E-10	1.56E-08	5.34E-09	1.03E-09
1.31E-09	1.23E-09	7.55E-10	1.63E-09	1.21E-09	1.45E-09	1.60E-08	5.16E-09	1.41E-09
1.38E-09	1.24E-09	9.77E-10	1.38E-09	8.47E-10	1.04E-09	1.58E-08	5.40E-09	1.20E-09
1.44E-09	1.10E-09	1.18E-09	1.35E-09	1.04E-09	8.10E-10	1.56E-08	5.02E-09	1.08E-09
1.34E-09	1.22E-09	1.20E-09	1.12E-09	8.69E-10	7.92E-10	1.58E-08	5.43E-09	1.28E-09
9.56E-10	9.24E-10	8.72E-10	1.37E-09	6.12E-10	8.36E-10	1.57E-08	5.09E-09	1.21E-09
9.57E-10	1.09E-09	1.04E-09	1.46E-09	1.23E-09	1.05E-09	1.58E-08	5.42E-09	1.57E-09
1.36E-09	1.18E-09	9.48E-10	1.75E-09	1.05E-09	8.16E-10	1.62E-08	6.04E-09	1.92E-09
1.18E-09	1.16E-09	8.80E-10	1.31E-09	8.09E-10	6.82E-10	1.57E-08	5.17E-09	1.16E-09
1.76E-09	1.78E-09	1.57E-09	1.74E-09	1.31E-09	1.13E-09	1.60E-08	5.27E-09	1.27E-09
1.39E-09	1.35E-09	1.05E-09	1.05E-09	8.83E-10	6.87E-10	1.61E-08	5.66E-09	1.60E-09
1.65E-09	1.31E-09	1.09E-09	1.51E-09	9.76E-10	8.19E-10	1.61E-08	5.62E-09	1.63E-09
1.27E-09	9.62E-10	1.03E-09	1.14E-09	8.50E-10	9.19E-10	1.58E-08	5.34E-09	1.24E-09
1.01E-09	8.53E-10	1.01E-09	1.57E-09	9.82E-10	8.16E-10	1.63E-08	5.83E-09	1.45E-09
1.29E-09	9.61E-10	1.11E-09	1.39E-09	1.02E-09	7.84E-10	1.59E-08	5.20E-09	1.31E-09
1.23E-09	1.19E-09	1.30E-09	1.25E-09	8.29E-10	9.43E-10	1.55E-08	5.15E-09	1.25E-09
1.12E-09	1.19E-09	9.47E-10	1.25E-09	1.07E-09	6.07E-10	1.55E-08	5.28E-09	1.18E-09
1.43E-09	1.31E-09	1.12E-09	1.37E-09	1.04E-09	1.31E-09	1.57E-08	5.31E-09	1.78E-09
1.41E-09	1.12E-09	1.07E-09	1.43E-09	1.07E-09	7.66E-10	1.62E-08	5.61E-09	1.60E-09
1.18E-09	1.14E-09	9.03E-10	1.73E-09	9.93E-10	6.69E-10	1.61E-08	5.58E-09	1.53E-09
1.80E-09	1.32E-09	1.27E-09	1.29E-09	9.39E-10	1.10E-09	1.58E-08	5.16E-09	1.24E-09
1.39E-09	7.65E-10	9.19E-10	1.40E-09	1.29E-09	8.68E-10	1.60E-08	5.34E-09	1.28E-09
1.42E-09	1.41E-09	1.05E-09	1.23E-09	8.65E-10	9.60E-10	1.58E-08	5.32E-09	1.41E-09
1.32E-09	1.07E-09	1.15E-09	1.27E-09	1.04E-09	9.07E-10	1.62E-08	5.24E-09	1.50E-09
8.99E-10	9.88E-10	9.53E-10	1.55E-09	9.52E-10	1.02E-09	1.61E-08	5.41E-09	1.23E-09
1.63E-09	1.35E-09	1.23E-09	1.21E-09	6.15E-10	7.82E-10	1.58E-08	5.14E-09	9.30E-10
1.82E-09	1.08E-09	1.55E-09	1.13E-09	1.04E-09	8.68E-10	1.55E-08	5.08E-09	1.11E-09
1.39E-09	1.21E-09	1.09E-09	1.06E-09	8.08E-10	9.11E-10	1.60E-08	5.40E-09	1.41E-09
1.69E-09	1.26E-09	1.35E-09	1.75E-09	1.15E-09	9.33E-10	1.61E-08	5.68E-09	1.57E-09
1.04E-09	1.00E-09	8.70E-10	1.34E-09	1.19E-09	9.15E-10	1.54E-08	5.20E-09	1.10E-09
1.47E-09	1.19E-09	1.01E-09	1.24E-09	9.39E-10	8.08E-10	1.58E-08	5.15E-09	1.29E-09
1.36E-09	1.07E-09	9.08E-10	1.21E-09	1.15E-09	8.09E-10	1.57E-08	5.11E-09	1.14E-09
1.31E-09	1.31E-09	8.28E-10	1.33E-09	9.05E-10	8.27E-10	1.56E-08	5.24E-09	1.36E-09
1.10E-09	8.75E-10	8.38E-10	1.70E-09	9.33E-10	8.33E-10	1.60E-08	5.40E-09	1.35E-09
1.27E-09	1.26E-09	1.28E-09	1.43E-09	5.98E-10	6.10E-10	1.60E-08	5.32E-09	1.56E-09
1.30E-09	1.37E-09	1.17E-09	1.04E-09	7.22E-10	9.01E-10	1.56E-08	4.92E-09	1.35E-09
1.18E-09	1.03E-09	1.07E-09	1.44E-09	8.20E-10	7.92E-10	1.57E-08	5.31E-09	1.28E-09
1.33E-09	1.21E-09	1.17E-09	1.43E-09	1.04E-09	8.55E-10	1.58E-08	5.40E-09	1.36E-09
1.27E-09	1.23E-09	7.30E-10	1.26E-09	7.25E-10	8.96E-10	1.63E-08	5.72E-09	1.53E-09
1.29E-09	1.19E-09	9.95E-10	1.70E-09	1.27E-09	1.00E-09	1.58E-08	5.17E-09	1.49E-09
1.19E-09	1.24E-09	9.31E-10	1.29E-09	1.15E-09	1.05E-09	1.61E-08	5.33E-09	1.07E-09
1.21E-09	1.26E-09	1.04E-09	1.55E-09	6.11E-10	5.43E-10	1.58E-08	5.11E-09	1.41E-09
1.76E-09	8.66E-10	8.77E-10	1.12E-09	9.07E-10	1.14E-09	1.60E-08	5.39E-09	1.18E-09

1.63E-09	1.34E-09	1.25E-09	1.52E-09	1.13E-09	1.07E-09	1.59E-08	5.30E-09	1.37E-09
1.19E-09	1.19E-09	9.30E-10	1.25E-09	8.84E-10	1.08E-09	1.59E-08	5.39E-09	1.16E-09
1.08E-09	9.46E-10	1.01E-09	1.50E-09	1.19E-09	7.78E-10	1.60E-08	5.08E-09	1.09E-09
1.27E-09	1.29E-09	1.18E-09	1.54E-09	9.28E-10	8.82E-10	1.59E-08	5.50E-09	1.47E-09
1.57E-09	1.30E-09	1.04E-09	1.80E-09	9.48E-10	7.86E-10	1.56E-08	5.40E-09	1.36E-09
1.07E-09	8.33E-10	7.20E-10	1.18E-09	1.08E-09	7.49E-10	1.56E-08	5.05E-09	1.14E-09
1.18E-09	1.18E-09	1.22E-09	1.49E-09	1.06E-09	1.15E-09	1.57E-08	5.26E-09	1.06E-09
1.22E-09	1.14E-09	9.25E-10	1.51E-09	9.42E-10	8.05E-10	1.59E-08	5.25E-09	1.20E-09
1.03E-09	1.08E-09	9.37E-10	1.58E-09	9.39E-10	8.07E-10	1.59E-08	5.29E-09	1.30E-09
1.17E-09	9.71E-10	1.17E-09	1.34E-09	8.34E-10	6.89E-10	1.56E-08	5.30E-09	1.10E-09
1.45E-09	1.04E-09	9.33E-10	1.28E-09	7.98E-10	9.85E-10	1.56E-08	5.23E-09	1.06E-09
1.42E-09	1.13E-09	1.20E-09	1.19E-09	8.93E-10	1.07E-09	1.60E-08	5.45E-09	1.47E-09
1.33E-09	1.39E-09	9.50E-10	1.16E-09	1.26E-09	9.38E-10	1.56E-08	5.27E-09	1.11E-09
1.18E-09	1.09E-09	1.20E-09	1.31E-09	1.28E-09	9.41E-10	1.57E-08	5.06E-09	1.18E-09
1.42E-09	1.18E-09	1.01E-09	1.12E-09	9.30E-10	8.31E-10	1.61E-08	5.99E-09	1.55E-09
1.04E-09	7.86E-10	9.60E-10	1.46E-09	9.12E-10	9.78E-10	1.57E-08	5.29E-09	1.22E-09
1.15E-09	1.07E-09	8.65E-10	1.40E-09	9.13E-10	9.98E-10	1.56E-08	5.05E-09	1.22E-09
1.00E-09	9.36E-10	8.67E-10	1.46E-09	9.03E-10	8.06E-10	1.58E-08	5.43E-09	1.41E-09
1.42E-09	8.63E-10	9.67E-10	1.51E-09	8.83E-10	7.48E-10	1.56E-08	5.19E-09	1.09E-09
1.21E-09	1.05E-09	8.95E-10	1.37E-09	1.07E-09	1.24E-09	1.56E-08	5.44E-09	1.51E-09
1.42E-09	1.48E-09	1.23E-09	1.78E-09	1.16E-09	8.22E-10	1.60E-08	5.30E-09	1.24E-09
1.40E-09	1.21E-09	1.20E-09	1.35E-09	8.14E-10	7.50E-10	1.59E-08	5.44E-09	1.45E-09
1.20E-09	1.04E-09	9.49E-10	1.09E-09	8.94E-10	1.05E-09	1.60E-08	5.62E-09	1.50E-09
1.27E-09	1.02E-09	1.02E-09	1.33E-09	8.01E-10	1.07E-09	1.58E-08	5.08E-09	1.51E-09
1.31E-09	1.01E-09	8.53E-10	1.15E-09	8.05E-10	1.05E-09	1.58E-08	5.22E-09	1.24E-09
9.77E-10	9.98E-10	7.70E-10	1.14E-09	7.15E-10	8.71E-10	1.57E-08	5.32E-09	1.23E-09
1.15E-09	9.97E-10	9.27E-10	1.50E-09	9.28E-10	1.27E-09	1.55E-08	5.22E-09	1.04E-09
1.64E-09	1.02E-09	9.86E-10	1.29E-09	1.04E-09	7.75E-10	1.55E-08	5.41E-09	1.34E-09
1.07E-09	1.08E-09	9.16E-10	1.27E-09	1.24E-09	8.58E-10	1.61E-08	5.73E-09	1.49E-09
1.88E-09	1.28E-09	1.36E-09	1.49E-09	1.06E-09	8.06E-10	1.58E-08	5.46E-09	1.22E-09
1.50E-09	1.24E-09	1.08E-09	1.50E-09	6.42E-10	9.12E-10	1.58E-08	5.72E-09	1.70E-09
1.61E-09	1.45E-09	1.43E-09	1.71E-09	7.17E-10	8.22E-10	1.60E-08	5.56E-09	1.32E-09
1.33E-09	1.03E-09	1.18E-09	1.79E-09	8.90E-10	9.36E-10	1.60E-08	5.35E-09	1.19E-09
1.14E-09	1.02E-09	1.04E-09	1.26E-09	9.61E-10	6.83E-10	1.57E-08	5.37E-09	1.19E-09
1.46E-09	1.09E-09	1.01E-09	1.48E-09	1.17E-09	1.07E-09	1.59E-08	5.55E-09	1.33E-09
1.61E-09	1.47E-09	9.40E-10	1.82E-09	9.67E-10	1.10E-09	1.59E-08	5.28E-09	1.42E-09
1.37E-09	1.11E-09	1.01E-09	1.73E-09	9.62E-10	8.77E-10	1.56E-08	5.40E-09	1.24E-09
1.29E-09	1.07E-09	9.19E-10	1.74E-09	1.20E-09	8.22E-10	1.59E-08	5.58E-09	1.36E-09
1.21E-09	1.10E-09	1.05E-09	1.81E-09	1.21E-09	7.53E-10	1.60E-08	5.37E-09	1.23E-09
1.05E-09	1.10E-09	9.04E-10	1.61E-09	1.07E-09	9.86E-10	1.61E-08	5.61E-09	1.29E-09
1.14E-09	9.53E-10	8.34E-10	1.39E-09	8.92E-10	8.25E-10	1.57E-08	5.45E-09	1.30E-09
1.27E-09	8.66E-10	1.10E-09	1.29E-09	8.93E-10	1.12E-09	1.58E-08	5.21E-09	1.36E-09
1.35E-09	1.32E-09	1.06E-09	1.13E-09	1.03E-09	9.22E-10	1.59E-08	5.25E-09	1.24E-09
1.50E-09	1.51E-09	1.22E-09	1.46E-09	9.60E-10	8.96E-10	1.56E-08	5.72E-09	1.23E-09
1.31E-09	1.06E-09	1.16E-09	1.65E-09	1.19E-09	1.00E-09	1.59E-08	5.37E-09	1.47E-09
1.32E-09	1.42E-09	1.24E-09	1.40E-09	8.03E-10	8.89E-10	1.58E-08	5.21E-09	1.25E-09
1.54E-09	1.01E-09	8.76E-10	1.30E-09	6.32E-10	1.20E-09	1.59E-08	5.13E-09	1.22E-09
1.47E-09	1.07E-09	9.04E-10	1.29E-09	7.67E-10	8.24E-10	1.57E-08	5.32E-09	1.34E-09
1.61E-09	9.82E-10	1.27E-09	1.11E-09	8.84E-10	8.69E-10	1.60E-08	4.96E-09	1.50E-09
1.43E-09	1.42E-09	1.17E-09	1.24E-09	1.08E-09	8.74E-10	1.57E-08	5.47E-09	1.44E-09

1.54E-09	1.18E-09	1.14E-09	1.51E-09	8.63E-10	1.01E-09	1.62E-08	5.40E-09	1.65E-09
1.59E-09	1.20E-09	1.23E-09	1.82E-09	1.17E-09	1.00E-09	1.57E-08	5.48E-09	1.34E-09
1.05E-09	1.02E-09	1.04E-09	1.56E-09	5.94E-10	6.89E-10	1.59E-08	5.47E-09	1.44E-09
1.51E-09	8.70E-10	1.33E-09	1.64E-09	1.08E-09	1.40E-09	1.63E-08	5.59E-09	1.56E-09
1.28E-09	9.35E-10	1.11E-09	1.35E-09	8.99E-10	7.96E-10	1.56E-08	5.15E-09	1.27E-09
1.50E-09	1.21E-09	1.23E-09	1.34E-09	7.42E-10	9.79E-10	1.61E-08	5.53E-09	1.64E-09
1.30E-09	8.57E-10	1.00E-09	1.57E-09	1.03E-09	9.43E-10	1.58E-08	5.36E-09	1.18E-09
1.32E-09	1.22E-09	1.02E-09	1.53E-09	1.41E-09	1.19E-09	1.59E-08	5.46E-09	1.67E-09
1.19E-09	1.22E-09	1.06E-09	1.37E-09	1.03E-09	9.61E-10	1.60E-08	5.28E-09	1.39E-09
1.17E-09	1.23E-09	1.18E-09	1.32E-09	9.41E-10	6.29E-10	1.57E-08	5.26E-09	1.41E-09
1.35E-09	1.46E-09	9.51E-10	1.21E-09	6.81E-10	1.04E-09	1.59E-08	5.49E-09	1.45E-09
1.27E-09	1.18E-09	1.42E-09	1.60E-09	6.85E-10	8.05E-10	1.60E-08	5.47E-09	1.40E-09
1.22E-09	9.15E-10	9.25E-10	1.15E-09	8.92E-10	6.27E-10	1.57E-08	5.13E-09	1.37E-09
1.13E-09	1.16E-09	1.02E-09	1.46E-09	9.90E-10	1.02E-09	1.57E-08	5.15E-09	1.21E-09
1.05E-09	8.72E-10	6.89E-10	1.49E-09	1.03E-09	1.18E-09	1.60E-08	5.58E-09	1.74E-09
1.03E-09	1.12E-09	1.19E-09	1.13E-09	1.01E-09	1.05E-09	1.58E-08	5.13E-09	1.24E-09
1.28E-09	1.27E-09	1.05E-09	1.28E-09	7.69E-10	6.92E-10	1.60E-08	5.41E-09	1.28E-09
1.05E-09	1.00E-09	1.20E-09	1.33E-09	1.38E-09	8.02E-10	1.58E-08	5.26E-09	1.47E-09
1.29E-09	1.10E-09	1.01E-09	1.38E-09	9.10E-10	7.44E-10	1.60E-08	5.44E-09	1.47E-09
1.12E-09	9.99E-10	1.03E-09	1.22E-09	9.38E-10	8.18E-10	1.61E-08	5.37E-09	1.26E-09
1.41E-09	1.09E-09	1.07E-09	1.39E-09	7.62E-10	9.01E-10	1.62E-08	5.64E-09	1.36E-09
1.29E-09	1.12E-09	9.93E-10	1.36E-09	9.70E-10	1.13E-09	1.57E-08	5.04E-09	1.16E-09
1.02E-09	9.06E-10	9.52E-10	1.23E-09	7.46E-10	7.68E-10	1.59E-08	5.37E-09	1.07E-09
1.02E-09	1.10E-09	1.06E-09	1.37E-09	8.62E-10	7.70E-10	1.59E-08	5.49E-09	1.32E-09
1.18E-09	9.88E-10	1.06E-09	1.39E-09	1.33E-09	1.72E-09	1.57E-08	5.32E-09	1.14E-09
1.31E-09	1.07E-09	1.21E-09	1.17E-09	9.36E-10	1.00E-09	1.58E-08	5.30E-09	1.03E-09
1.05E-09	9.11E-10	8.94E-10	1.26E-09	9.25E-10	9.38E-10	1.57E-08	5.20E-09	1.25E-09
1.39E-09	1.32E-09	1.05E-09	1.30E-09	9.46E-10	1.06E-09	1.57E-08	5.39E-09	1.24E-09
1.17E-09	9.56E-10	9.98E-10	1.40E-09	1.12E-09	8.94E-10	1.57E-08	5.36E-09	1.36E-09
1.61E-09	1.23E-09	1.20E-09	1.28E-09	9.57E-10	9.44E-10	1.67E-08	6.13E-09	1.74E-09
9.38E-10	8.43E-10	7.75E-10	1.34E-09	9.61E-10	7.36E-10	1.60E-08	5.15E-09	1.43E-09
9.80E-10	6.85E-10	7.26E-10	1.43E-09	8.73E-10	9.73E-10	1.59E-08	5.17E-09	1.07E-09
1.18E-09	1.23E-09	1.08E-09	1.42E-09	1.02E-09	9.89E-10	1.62E-08	5.38E-09	1.74E-09
1.30E-09	1.05E-09	8.45E-10	1.54E-09	7.66E-10	8.57E-10	1.59E-08	5.54E-09	1.78E-09
1.22E-09	1.56E-09	9.77E-10	1.22E-09	8.67E-10	7.86E-10	1.61E-08	5.28E-09	1.48E-09
1.28E-09	9.69E-10	7.29E-10	1.46E-09	8.94E-10	1.13E-09	1.57E-08	5.44E-09	1.16E-09
1.07E-09	1.13E-09	1.02E-09	1.04E-09	7.15E-10	8.72E-10	1.61E-08	5.44E-09	1.57E-09
1.28E-09	1.10E-09	1.17E-09	1.36E-09	9.02E-10	9.98E-10	1.58E-08	5.09E-09	1.29E-09
1.19E-09	9.24E-10	1.00E-09	1.45E-09	1.24E-09	1.14E-09	1.58E-08	5.35E-09	1.33E-09
1.27E-09	9.39E-10	7.88E-10	1.29E-09	1.42E-09	1.02E-09	1.58E-08	5.36E-09	1.29E-09
1.10E-09	9.59E-10	1.07E-09	1.52E-09	9.52E-10	9.25E-10	1.59E-08	5.45E-09	1.47E-09
1.90E-09	1.59E-09	1.61E-09	1.34E-09	9.97E-10	8.00E-10	1.59E-08	5.17E-09	1.24E-09
1.21E-09	9.10E-10	1.06E-09	1.39E-09	8.86E-10	7.62E-10	1.58E-08	4.98E-09	1.23E-09
1.19E-09	9.02E-10	9.45E-10	1.40E-09	9.53E-10	1.03E-09	1.60E-08	5.37E-09	1.37E-09
1.28E-09	1.29E-09	1.09E-09	1.34E-09	6.47E-10	7.94E-10	1.60E-08	5.45E-09	1.48E-09
1.20E-09	1.08E-09	1.13E-09	1.75E-09	8.84E-10	8.13E-10	1.60E-08	5.29E-09	1.13E-09
1.32E-09	9.90E-10	1.24E-09	1.31E-09	8.07E-10	7.08E-10	1.59E-08	5.16E-09	1.07E-09
1.05E-09	7.72E-10	8.59E-10	1.33E-09	1.22E-09	1.03E-09	1.58E-08	5.60E-09	1.21E-09
1.46E-09	1.08E-09	1.13E-09	1.33E-09	8.82E-10	8.75E-10	1.59E-08	5.45E-09	1.48E-09
1.21E-09	9.49E-10	9.11E-10	1.29E-09	6.07E-10	7.18E-10	1.58E-08	5.16E-09	1.20E-09

1.13E-09	1.14E-09	7.42E-10	9.81E-10	8.41E-10	6.57E-10	1.56E-08	5.19E-09	9.56E-10
1.14E-09	1.00E-09	1.07E-09	1.70E-09	5.43E-10	8.25E-10	1.58E-08	5.40E-09	1.35E-09
1.19E-09	1.20E-09	1.06E-09	1.54E-09	1.29E-09	1.07E-09	1.58E-08	5.39E-09	1.46E-09
1.27E-09	1.09E-09	1.03E-09	1.44E-09	1.18E-09	9.55E-10	1.59E-08	5.30E-09	1.77E-09
9.03E-10	9.65E-10	9.42E-10	1.33E-09	1.13E-09	8.58E-10	1.55E-08	5.49E-09	1.40E-09
1.31E-09	1.35E-09	1.27E-09	1.27E-09	6.55E-10	8.18E-10	1.60E-08	5.38E-09	1.31E-09
1.47E-09	1.13E-09	1.46E-09	1.80E-09	8.59E-10	7.22E-10	1.60E-08	5.41E-09	1.27E-09
1.14E-09	1.10E-09	1.04E-09	1.42E-09	9.99E-10	1.06E-09	1.59E-08	5.54E-09	1.47E-09
1.24E-09	1.24E-09	9.71E-10	1.28E-09	1.14E-09	8.71E-10	1.58E-08	5.30E-09	1.24E-09
1.34E-09	1.29E-09	1.26E-09	1.34E-09	8.41E-10	6.96E-10	1.59E-08	5.24E-09	1.20E-09
1.29E-09	1.02E-09	1.01E-09	1.50E-09	8.95E-10	9.93E-10	1.61E-08	5.45E-09	1.22E-09
1.06E-09	1.13E-09	9.71E-10	1.57E-09	7.65E-10	1.17E-09	1.56E-08	5.30E-09	1.16E-09
1.28E-09	1.08E-09	1.03E-09	1.23E-09	8.06E-10	9.35E-10	1.60E-08	5.55E-09	1.61E-09
1.03E-09	9.01E-10	9.13E-10	1.22E-09	8.99E-10	7.89E-10	1.55E-08	5.39E-09	1.10E-09
1.23E-09	1.14E-09	1.28E-09	1.17E-09	6.43E-10	6.17E-10	1.57E-08	5.42E-09	1.44E-09
1.22E-09	1.13E-09	9.60E-10	1.69E-09	8.60E-10	8.76E-10	1.58E-08	5.35E-09	1.34E-09
1.53E-09	1.17E-09	1.22E-09	1.40E-09	1.03E-09	9.16E-10	1.57E-08	5.08E-09	1.20E-09
1.42E-09	1.35E-09	1.16E-09	1.43E-09	1.07E-09	7.35E-10	1.58E-08	5.10E-09	1.13E-09
1.44E-09	1.27E-09	1.11E-09	1.26E-09	8.67E-10	9.71E-10	1.61E-08	5.68E-09	1.50E-09
1.50E-09	9.93E-10	1.09E-09	1.56E-09	1.04E-09	9.12E-10	1.57E-08	5.52E-09	1.65E-09
1.48E-09	1.10E-09	9.10E-10	1.51E-09	9.11E-10	7.20E-10	1.60E-08	5.75E-09	1.70E-09
1.18E-09	1.10E-09	1.00E-09	1.34E-09	6.77E-10	9.24E-10	1.57E-08	5.38E-09	1.42E-09
9.53E-10	7.12E-10	9.53E-10	1.54E-09	7.85E-10	9.14E-10	1.54E-08	5.01E-09	1.36E-09
1.32E-09	1.29E-09	1.34E-09	1.09E-09	9.09E-10	1.15E-09	1.59E-08	5.69E-09	1.32E-09
1.39E-09	1.35E-09	1.45E-09	1.19E-09	1.07E-09	8.60E-10	1.64E-08	5.81E-09	1.51E-09
1.18E-09	1.25E-09	1.13E-09	1.59E-09	9.46E-10	9.45E-10	1.59E-08	5.22E-09	1.06E-09
1.34E-09	1.49E-09	1.14E-09	1.31E-09	9.04E-10	1.25E-09	1.58E-08	5.35E-09	1.28E-09
1.57E-09	1.36E-09	1.17E-09	1.56E-09	9.09E-10	8.94E-10	1.59E-08	5.33E-09	1.45E-09
1.12E-09	8.21E-10	8.00E-10	1.31E-09	1.06E-09	8.20E-10	1.58E-08	5.20E-09	1.17E-09
1.55E-09	1.06E-09	1.09E-09	1.30E-09	7.57E-10	1.05E-09	1.64E-08	5.40E-09	1.36E-09
1.58E-09	1.28E-09	9.26E-10	1.60E-09	9.80E-10	1.11E-09	1.58E-08	5.27E-09	1.26E-09
1.32E-09	1.19E-09	1.01E-09	1.47E-09	9.53E-10	9.81E-10	1.57E-08	5.39E-09	1.20E-09
1.02E-09	7.64E-10	6.63E-10	1.56E-09	1.21E-09	9.17E-10	1.59E-08	5.71E-09	1.35E-09
1.13E-09	1.05E-09	9.22E-10	1.27E-09	1.22E-09	1.25E-09	1.59E-08	5.27E-09	1.39E-09
1.31E-09	1.17E-09	1.05E-09	1.41E-09	9.80E-10	9.41E-10	1.59E-08	5.42E-09	1.49E-09
1.15E-09	8.12E-10	9.36E-10	1.61E-09	1.13E-09	9.04E-10	1.59E-08	5.36E-09	1.40E-09
1.35E-09	8.90E-10	9.24E-10	1.31E-09	1.10E-09	9.33E-10	1.56E-08	5.13E-09	1.24E-09
1.35E-09	1.58E-09	1.21E-09	1.65E-09	1.09E-09	8.78E-10	1.60E-08	5.20E-09	1.69E-09
1.24E-09	9.79E-10	9.41E-10	1.21E-09	1.14E-09	1.01E-09	1.57E-08	5.17E-09	1.41E-09
1.51E-09	1.26E-09	1.11E-09	1.23E-09	1.06E-09	8.05E-10	1.59E-08	5.31E-09	1.49E-09
1.01E-09	9.30E-10	9.44E-10	1.19E-09	1.06E-09	9.44E-10	1.60E-08	5.31E-09	1.29E-09
1.23E-09	8.80E-10	9.55E-10	1.70E-09	1.58E-09	1.02E-09	1.57E-08	5.35E-09	1.32E-09
1.35E-09	1.14E-09	8.58E-10	1.24E-09	1.29E-09	8.61E-10	1.56E-08	5.32E-09	1.35E-09
1.25E-09	1.35E-09	8.40E-10	1.38E-09	8.15E-10	6.74E-10	1.59E-08	5.35E-09	1.37E-09
1.28E-09	1.09E-09	9.75E-10	1.28E-09	7.97E-10	1.05E-09	1.58E-08	5.43E-09	1.33E-09
1.06E-09	8.23E-10	9.12E-10	1.22E-09	7.48E-10	7.19E-10	1.58E-08	5.22E-09	1.08E-09
1.18E-09	1.23E-09	1.14E-09	1.40E-09	8.20E-10	6.81E-10	1.62E-08	5.47E-09	1.65E-09
1.70E-09	1.23E-09	1.18E-09	1.13E-09	1.10E-09	9.58E-10	1.58E-08	5.25E-09	1.36E-09
1.23E-09	1.10E-09	9.35E-10	1.43E-09	9.35E-10	7.39E-10	1.58E-08	5.18E-09	1.10E-09
1.19E-09	1.29E-09	1.18E-09	1.23E-09	7.18E-10	7.82E-10	1.62E-08	5.21E-09	1.12E-09

1.30E-09	1.13E-09	1.25E-09	1.27E-09	1.06E-09	8.08E-10	1.57E-08	5.02E-09	9.36E-10
1.37E-09	1.09E-09	1.07E-09	1.39E-09	8.80E-10	7.66E-10	1.62E-08	5.43E-09	1.46E-09
1.03E-09	1.05E-09	1.04E-09	1.77E-09	1.06E-09	1.13E-09	1.58E-08	5.26E-09	1.38E-09
1.52E-09	1.29E-09	9.64E-10	1.25E-09	1.07E-09	7.81E-10	1.58E-08	5.47E-09	1.06E-09
8.99E-10	9.22E-10	9.38E-10	1.16E-09	1.05E-09	8.25E-10	1.58E-08	5.11E-09	1.24E-09
1.44E-09	1.36E-09	1.66E-09	1.45E-09	8.98E-10	8.32E-10	1.62E-08	5.31E-09	1.44E-09
1.30E-09	1.13E-09	9.85E-10	1.50E-09	1.16E-09	1.07E-09	1.60E-08	5.23E-09	1.38E-09
1.41E-09	9.49E-10	1.10E-09	1.54E-09	1.15E-09	8.93E-10	1.58E-08	5.25E-09	1.49E-09
1.11E-09	8.81E-10	9.10E-10	1.56E-09	9.16E-10	8.55E-10	1.57E-08	5.31E-09	1.49E-09
1.49E-09	1.13E-09	9.78E-10	1.64E-09	9.58E-10	1.20E-09	1.60E-08	5.25E-09	1.21E-09
1.25E-09	1.05E-09	1.13E-09	1.30E-09	8.33E-10	1.03E-09	1.58E-08	5.47E-09	1.20E-09
1.37E-09	8.92E-10	1.02E-09	1.67E-09	8.47E-10	9.73E-10	1.57E-08	5.15E-09	1.26E-09
1.05E-09	1.00E-09	1.04E-09	1.73E-09	1.23E-09	1.09E-09	1.60E-08	5.36E-09	1.39E-09
1.25E-09	8.27E-10	9.93E-10	1.20E-09	7.52E-10	9.33E-10	1.57E-08	5.02E-09	1.15E-09
1.31E-09	8.52E-10	9.82E-10	1.17E-09	1.12E-09	9.68E-10	1.57E-08	5.00E-09	9.80E-10
1.31E-09	1.02E-09	8.43E-10	1.45E-09	1.08E-09	1.20E-09	1.58E-08	5.45E-09	1.10E-09
1.37E-09	1.19E-09	1.10E-09	1.68E-09	8.06E-10	1.03E-09	1.59E-08	5.31E-09	1.16E-09
1.45E-09	1.37E-09	1.44E-09	1.28E-09	8.65E-10	1.10E-09	1.59E-08	5.33E-09	1.26E-09
1.37E-09	1.14E-09	1.07E-09	1.26E-09	8.89E-10	8.11E-10	1.59E-08	5.20E-09	1.41E-09
1.12E-09	8.66E-10	8.26E-10	1.31E-09	8.93E-10	8.23E-10	1.57E-08	5.27E-09	1.35E-09
1.01E-09	1.07E-09	8.66E-10	1.35E-09	9.62E-10	5.13E-10	1.57E-08	5.45E-09	1.23E-09
1.39E-09	9.43E-10	9.37E-10	1.14E-09	7.44E-10	8.37E-10	1.57E-08	5.19E-09	1.05E-09
1.27E-09	1.13E-09	1.06E-09	1.28E-09	8.94E-10	9.48E-10	1.59E-08	5.41E-09	1.36E-09
1.19E-09	9.21E-10	8.07E-10	1.37E-09	9.31E-10	7.74E-10	1.61E-08	5.37E-09	1.49E-09
1.26E-09	9.29E-10	8.81E-10	1.53E-09	6.20E-10	9.79E-10	1.62E-08	5.31E-09	1.75E-09
1.19E-09	1.12E-09	1.10E-09	1.24E-09	1.02E-09	8.60E-10	1.53E-08	5.01E-09	1.04E-09
1.30E-09	1.38E-09	1.17E-09	1.25E-09	1.27E-09	9.33E-10	1.56E-08	5.22E-09	1.24E-09
1.32E-09	1.04E-09	1.08E-09	1.31E-09	9.77E-10	6.71E-10	1.58E-08	5.46E-09	1.59E-09
9.99E-10	1.01E-09	1.15E-09	1.49E-09	1.14E-09	1.25E-09	1.59E-08	5.34E-09	1.14E-09
1.33E-09	1.06E-09	1.21E-09	1.77E-09	1.39E-09	1.05E-09	1.60E-08	5.38E-09	1.23E-09
1.12E-09	9.76E-10	9.70E-10	1.19E-09	1.21E-09	8.85E-10	1.58E-08	5.34E-09	1.32E-09
1.15E-09	1.36E-09	9.18E-10	1.43E-09	1.01E-09	1.06E-09	1.59E-08	5.32E-09	1.26E-09
1.43E-09	1.20E-09	1.16E-09	1.58E-09	1.02E-09	1.14E-09	1.58E-08	5.49E-09	1.18E-09
1.39E-09	1.06E-09	1.34E-09	1.60E-09	1.02E-09	1.05E-09	1.61E-08	5.55E-09	1.42E-09
1.36E-09	1.18E-09	1.16E-09	1.04E-09	9.43E-10	8.98E-10	1.56E-08	5.06E-09	1.41E-09
1.19E-09	7.70E-10	1.04E-09	1.12E-09	1.22E-09	1.05E-09	1.56E-08	5.13E-09	1.03E-09
1.51E-09	1.22E-09	1.13E-09	1.17E-09	1.07E-09	1.01E-09	1.60E-08	5.44E-09	1.33E-09
1.16E-09	1.04E-09	1.19E-09	1.23E-09	8.38E-10	1.06E-09	1.59E-08	5.47E-09	1.32E-09
1.21E-09	1.04E-09	1.16E-09	1.64E-09	8.28E-10	8.17E-10	1.59E-08	5.31E-09	1.17E-09
1.49E-09	1.18E-09	1.07E-09	1.26E-09	7.31E-10	8.90E-10	1.61E-08	5.54E-09	1.50E-09
9.66E-10	1.03E-09	7.48E-10	1.23E-09	6.43E-10	6.74E-10	1.61E-08	5.50E-09	1.49E-09
1.22E-09	1.22E-09	9.05E-10	1.27E-09	1.13E-09	9.04E-10	1.64E-08	5.69E-09	1.43E-09
1.09E-09	1.04E-09	8.92E-10	1.41E-09	1.17E-09	7.46E-10	1.60E-08	5.44E-09	1.41E-09
1.29E-09	1.25E-09	1.07E-09	1.33E-09	1.01E-09	8.67E-10	1.58E-08	5.29E-09	1.13E-09
1.25E-09	1.13E-09	1.01E-09	1.17E-09	8.98E-10	7.16E-10	1.59E-08	5.18E-09	1.32E-09
1.31E-09	9.52E-10	8.56E-10	1.19E-09	1.02E-09	9.32E-10	1.57E-08	5.54E-09	1.16E-09
1.59E-09	1.02E-09	1.03E-09	1.63E-09	1.15E-09	8.89E-10	1.57E-08	5.29E-09	1.13E-09
1.60E-09	1.01E-09	1.25E-09	1.42E-09	8.62E-10	6.65E-10	1.60E-08	5.35E-09	1.35E-09
1.24E-09	9.07E-10	1.11E-09	1.10E-09	9.47E-10	7.95E-10	1.60E-08	5.51E-09	1.70E-09
1.42E-09	1.17E-09	9.34E-10	2.04E-09	1.12E-09	1.22E-09	1.59E-08	5.32E-09	1.35E-09

1.44E-09	1.29E-09	9.57E-10	1.44E-09	1.08E-09	7.15E-10	1.58E-08	5.16E-09	1.16E-09
1.60E-09	1.11E-09	1.16E-09	1.55E-09	1.02E-09	1.09E-09	1.57E-08	5.37E-09	1.22E-09
1.52E-09	1.48E-09	1.47E-09	1.52E-09	8.96E-10	8.40E-10	1.58E-08	5.26E-09	1.43E-09
1.42E-09	1.22E-09	1.10E-09	1.61E-09	9.51E-10	1.04E-09	1.57E-08	5.18E-09	1.06E-09
1.00E-09	1.05E-09	8.38E-10	1.25E-09	1.21E-09	8.40E-10	1.58E-08	5.57E-09	1.60E-09
1.31E-09	1.08E-09	9.98E-10	1.46E-09	9.51E-10	7.91E-10	1.58E-08	5.15E-09	1.31E-09
1.17E-09	9.66E-10	1.07E-09	1.40E-09	1.09E-09	8.04E-10	1.58E-08	5.25E-09	1.35E-09
1.07E-09	1.03E-09	8.44E-10	1.18E-09	1.08E-09	6.13E-10	1.59E-08	5.21E-09	1.40E-09
1.59E-09	1.28E-09	1.20E-09	1.83E-09	9.57E-10	1.02E-09	1.60E-08	5.39E-09	1.20E-09
1.28E-09	1.15E-09	9.93E-10	1.79E-09	9.75E-10	1.16E-09	1.59E-08	5.35E-09	1.28E-09
1.15E-09	9.78E-10	1.03E-09	1.42E-09	8.28E-10	8.10E-10	1.58E-08	5.29E-09	1.11E-09
1.47E-09	1.02E-09	8.19E-10	1.29E-09	9.13E-10	6.93E-10	1.61E-08	5.37E-09	1.45E-09
1.38E-09	1.03E-09	1.05E-09	1.26E-09	7.53E-10	6.40E-10	1.60E-08	5.29E-09	1.32E-09
1.43E-09	7.68E-10	8.24E-10	1.54E-09	9.95E-10	8.66E-10	1.57E-08	5.39E-09	1.61E-09
1.27E-09	1.06E-09	1.03E-09	1.12E-09	6.08E-10	6.50E-10	1.59E-08	5.49E-09	1.03E-09
1.16E-09	9.83E-10	7.86E-10	1.74E-09	1.09E-09	8.06E-10	1.62E-08	5.58E-09	1.66E-09
1.82E-09	1.53E-09	1.37E-09	1.33E-09	9.56E-10	1.24E-09	1.59E-08	5.52E-09	1.12E-09
1.16E-09	1.14E-09	1.35E-09	1.26E-09	7.57E-10	8.99E-10	1.58E-08	5.44E-09	1.21E-09
8.24E-10	6.90E-10	8.03E-10	1.49E-09	1.21E-09	1.17E-09	1.62E-08	5.50E-09	1.62E-09
1.32E-09	8.83E-10	1.07E-09	1.58E-09	9.18E-10	9.87E-10	1.58E-08	5.11E-09	1.39E-09
1.09E-09	9.31E-10	1.28E-09	1.49E-09	9.44E-10	8.34E-10	1.59E-08	5.37E-09	1.34E-09
1.06E-09	1.04E-09	7.46E-10	1.56E-09	1.12E-09	9.13E-10	1.60E-08	5.56E-09	1.56E-09
1.58E-09	1.14E-09	1.07E-09	1.45E-09	8.33E-10	7.77E-10	1.60E-08	5.45E-09	1.17E-09
1.29E-09	1.16E-09	9.98E-10	1.32E-09	1.03E-09	7.20E-10	1.63E-08	5.59E-09	1.52E-09
1.17E-09	1.06E-09	1.07E-09	1.34E-09	1.09E-09	7.64E-10	1.59E-08	5.19E-09	1.03E-09
1.19E-09	1.37E-09	9.80E-10	1.41E-09	8.34E-10	9.99E-10	1.57E-08	5.32E-09	1.07E-09
1.08E-09	9.41E-10	1.06E-09	1.21E-09	9.18E-10	8.18E-10	1.59E-08	5.21E-09	1.35E-09
1.09E-09	1.02E-09	7.36E-10	1.21E-09	9.29E-10	7.05E-10	1.61E-08	5.52E-09	1.44E-09
1.33E-09	1.09E-09	1.06E-09	1.50E-09	9.70E-10	1.02E-09	1.61E-08	5.51E-09	1.46E-09
1.15E-09	8.75E-10	9.85E-10	1.23E-09	1.36E-09	1.08E-09	1.58E-08	5.36E-09	1.10E-09
1.16E-09	1.16E-09	7.40E-10	1.32E-09	8.84E-10	1.05E-09	1.57E-08	5.06E-09	1.32E-09
1.30E-09	1.11E-09	1.10E-09	1.11E-09	9.94E-10	9.69E-10	1.59E-08	5.33E-09	1.28E-09
1.17E-09	1.01E-09	9.03E-10	1.27E-09	1.04E-09	9.61E-10	1.59E-08	5.32E-09	1.21E-09
1.17E-09	1.03E-09	1.05E-09	1.38E-09	7.77E-10	9.35E-10	1.58E-08	5.27E-09	1.19E-09
1.30E-09	1.04E-09	9.50E-10	1.20E-09	7.45E-10	9.11E-10	1.57E-08	5.49E-09	1.25E-09
1.08E-09	9.06E-10	9.49E-10	1.72E-09	1.23E-09	9.97E-10	1.58E-08	5.31E-09	1.29E-09
1.10E-09	1.07E-09	9.70E-10	1.50E-09	5.97E-10	7.41E-10	1.56E-08	4.94E-09	1.11E-09
1.08E-09	1.05E-09	1.04E-09	1.28E-09	9.63E-10	8.71E-10	1.59E-08	5.19E-09	1.27E-09
1.13E-09	9.25E-10	8.92E-10	1.24E-09	8.78E-10	1.08E-09	1.59E-08	5.34E-09	1.42E-09
1.42E-09	1.06E-09	1.15E-09	1.31E-09	7.87E-10	8.28E-10	1.59E-08	5.19E-09	1.70E-09
1.35E-09	1.16E-09	1.22E-09	1.50E-09	1.08E-09	1.02E-09	1.58E-08	5.27E-09	1.19E-09
1.48E-09	1.23E-09	1.05E-09	1.33E-09	9.80E-10	9.15E-10	1.58E-08	5.17E-09	1.06E-09
1.20E-09	1.01E-09	1.06E-09	1.05E-09	6.59E-10	7.29E-10	1.61E-08	5.44E-09	1.25E-09
1.20E-09	1.20E-09	1.36E-09	1.73E-09	1.15E-09	1.02E-09	1.59E-08	5.53E-09	1.42E-09
1.13E-09	9.51E-10	1.05E-09	1.62E-09	8.65E-10	9.72E-10	1.57E-08	5.12E-09	1.28E-09
9.71E-10	8.37E-10	8.79E-10	1.11E-09	8.89E-10	1.05E-09	1.58E-08	5.24E-09	1.41E-09
1.15E-09	8.92E-10	8.28E-10	1.55E-09	8.25E-10	8.28E-10	1.59E-08	5.61E-09	1.27E-09
1.07E-09	9.44E-10	8.69E-10	1.33E-09	1.00E-09	9.87E-10	1.62E-08	5.52E-09	1.63E-09
1.04E-09	7.85E-10	9.27E-10	1.26E-09	7.15E-10	8.27E-10	1.57E-08	5.32E-09	1.12E-09
1.39E-09	1.26E-09	1.11E-09	1.22E-09	9.38E-10	9.02E-10	1.58E-08	5.08E-09	1.34E-09

1.24E-09	1.01E-09	1.06E-09	1.27E-09	1.03E-09	9.73E-10	1.61E-08	5.55E-09	1.44E-09
1.42E-09	1.48E-09	9.04E-10	1.29E-09	1.06E-09	9.15E-10	1.58E-08	5.22E-09	1.69E-09
1.03E-09	1.06E-09	8.43E-10	1.50E-09	9.04E-10	8.45E-10	1.58E-08	5.07E-09	1.28E-09
1.29E-09	1.35E-09	1.23E-09	1.18E-09	1.11E-09	7.34E-10	1.60E-08	5.37E-09	1.59E-09
1.13E-09	8.81E-10	1.16E-09	1.34E-09	1.00E-09	7.48E-10	1.58E-08	5.42E-09	1.43E-09
1.18E-09	1.15E-09	1.19E-09	1.52E-09	1.12E-09	1.01E-09	1.57E-08	5.36E-09	1.21E-09
1.16E-09	1.15E-09	1.04E-09	1.54E-09	1.56E-09	1.17E-09	1.56E-08	5.25E-09	1.22E-09
1.24E-09	1.07E-09	1.02E-09	1.23E-09	1.04E-09	1.25E-09	1.56E-08	5.37E-09	1.10E-09
1.29E-09	1.07E-09	1.42E-09	1.49E-09	8.30E-10	9.15E-10	1.56E-08	5.23E-09	1.37E-09
1.30E-09	1.13E-09	1.30E-09	1.07E-09	6.24E-10	9.35E-10	1.59E-08	5.35E-09	1.36E-09
1.19E-09	1.02E-09	9.95E-10	1.37E-09	1.07E-09	1.06E-09	1.55E-08	5.35E-09	1.46E-09
1.28E-09	1.10E-09	1.20E-09	1.54E-09	1.13E-09	1.17E-09	1.59E-08	5.37E-09	1.39E-09
1.25E-09	1.33E-09	1.18E-09	1.34E-09	1.06E-09	1.02E-09	1.59E-08	5.40E-09	1.64E-09
1.32E-09	1.01E-09	8.49E-10	1.07E-09	1.10E-09	7.82E-10	1.58E-08	5.55E-09	1.43E-09
1.06E-09	1.02E-09	1.21E-09	1.34E-09	9.68E-10	8.76E-10	1.60E-08	5.44E-09	1.44E-09
1.28E-09	1.26E-09	8.35E-10	1.85E-09	1.04E-09	1.02E-09	1.59E-08	5.09E-09	1.56E-09
1.63E-09	1.24E-09	1.31E-09	1.10E-09	7.83E-10	8.27E-10	1.62E-08	5.44E-09	1.27E-09
1.19E-09	1.15E-09	1.28E-09	1.39E-09	1.08E-09	7.66E-10	1.56E-08	5.41E-09	9.82E-10
1.31E-09	1.08E-09	9.37E-10	1.70E-09	1.15E-09	8.91E-10	1.56E-08	5.49E-09	1.16E-09
1.30E-09	1.22E-09	1.10E-09	1.32E-09	8.08E-10	9.23E-10	1.58E-08	5.18E-09	1.20E-09
1.14E-09	9.28E-10	1.06E-09	1.37E-09	8.81E-10	9.34E-10	1.58E-08	5.25E-09	1.13E-09
1.36E-09	1.18E-09	9.51E-10	1.24E-09	6.93E-10	8.59E-10	1.55E-08	5.16E-09	1.37E-09
1.29E-09	8.58E-10	1.01E-09	1.57E-09	9.69E-10	1.00E-09	1.58E-08	5.33E-09	9.61E-10
1.47E-09	1.52E-09	1.22E-09	1.60E-09	1.27E-09	9.03E-10	1.58E-08	5.35E-09	1.13E-09
1.22E-09	9.67E-10	1.06E-09	1.05E-09	1.13E-09	7.24E-10	1.58E-08	5.28E-09	1.17E-09
1.80E-09	1.46E-09	1.43E-09	1.38E-09	8.63E-10	9.48E-10	1.59E-08	5.30E-09	1.32E-09
1.59E-09	1.16E-09	1.27E-09	1.30E-09	1.03E-09	1.12E-09	1.60E-08	5.26E-09	1.37E-09
1.23E-09	8.83E-10	9.61E-10	1.17E-09	8.22E-10	8.09E-10	1.59E-08	5.33E-09	1.36E-09
9.47E-10	9.57E-10	9.31E-10	1.70E-09	1.09E-09	9.30E-10	1.58E-08	5.51E-09	1.10E-09
1.09E-09	1.09E-09	9.97E-10	1.21E-09	7.44E-10	7.45E-10	1.64E-08	5.46E-09	1.63E-09
1.66E-09	1.28E-09	1.07E-09	1.20E-09	7.26E-10	7.98E-10	1.59E-08	5.25E-09	1.08E-09
1.16E-09	1.07E-09	7.07E-10	1.37E-09	8.48E-10	8.28E-10	1.57E-08	4.89E-09	1.02E-09
1.31E-09	9.96E-10	1.03E-09	1.72E-09	9.02E-10	9.33E-10	1.56E-08	5.14E-09	1.22E-09
1.27E-09	1.16E-09	1.09E-09	1.86E-09	1.00E-09	1.10E-09	1.59E-08	5.51E-09	1.39E-09
1.16E-09	9.77E-10	1.07E-09	1.41E-09	1.04E-09	1.23E-09	1.58E-08	5.04E-09	1.56E-09
1.11E-09	8.97E-10	8.38E-10	1.24E-09	7.91E-10	8.70E-10	1.58E-08	5.41E-09	1.50E-09
1.34E-09	9.43E-10	1.21E-09	1.19E-09	1.02E-09	1.08E-09	1.58E-08	5.54E-09	1.36E-09
1.09E-09	1.04E-09	9.25E-10	1.10E-09	9.55E-10	8.66E-10	1.56E-08	5.07E-09	1.27E-09
1.45E-09	1.48E-09	1.32E-09	1.29E-09	9.84E-10	8.30E-10	1.59E-08	5.13E-09	1.18E-09
1.09E-09	1.08E-09	7.69E-10	1.55E-09	1.00E-09	6.96E-10	1.58E-08	5.33E-09	1.15E-09
1.36E-09	1.14E-09	9.24E-10	1.44E-09	8.05E-10	6.12E-10	1.59E-08	5.38E-09	1.30E-09
1.39E-09	1.18E-09	7.16E-10	1.68E-09	8.81E-10	7.57E-10	1.58E-08	5.11E-09	1.52E-09
1.26E-09	1.06E-09	1.06E-09	1.33E-09	1.12E-09	9.68E-10	1.56E-08	5.22E-09	1.40E-09
1.28E-09	9.10E-10	1.35E-09	1.24E-09	1.03E-09	7.57E-10	1.57E-08	5.32E-09	1.31E-09
1.09E-09	1.07E-09	7.57E-10	1.41E-09	1.06E-09	1.01E-09	1.61E-08	5.55E-09	1.45E-09
1.55E-09	1.31E-09	1.12E-09	1.17E-09	1.02E-09	1.07E-09	1.61E-08	5.35E-09	1.69E-09
1.16E-09	1.33E-09	9.82E-10	1.28E-09	1.20E-09	1.00E-09	1.59E-08	5.46E-09	1.53E-09
1.45E-09	1.04E-09	1.18E-09	1.10E-09	9.63E-10	8.01E-10	1.60E-08	5.67E-09	1.32E-09
1.12E-09	1.39E-09	1.10E-09	1.55E-09	1.04E-09	1.03E-09	1.56E-08	5.18E-09	1.26E-09
1.38E-09	9.95E-10	9.05E-10	1.46E-09	8.96E-10	8.75E-10	1.58E-08	5.22E-09	1.46E-09

1.24E-09	1.15E-09	1.00E-09	1.23E-09	1.31E-09	9.28E-10	1.59E-08	5.34E-09	1.43E-09
1.29E-09	1.04E-09	9.27E-10	1.47E-09	1.22E-09	1.35E-09	1.64E-08	5.78E-09	1.80E-09
1.22E-09	1.23E-09	1.08E-09	1.41E-09	1.07E-09	9.06E-10	1.61E-08	5.51E-09	1.41E-09
1.30E-09	1.03E-09	9.48E-10	1.60E-09	1.05E-09	7.35E-10	1.58E-08	5.27E-09	1.24E-09
1.15E-09	1.18E-09	9.67E-10	1.22E-09	9.03E-10	8.62E-10	1.60E-08	5.61E-09	1.48E-09
1.65E-09	9.68E-10	1.07E-09	1.30E-09	8.75E-10	9.31E-10	1.59E-08	5.46E-09	1.41E-09
1.31E-09	1.36E-09	1.07E-09	1.23E-09	8.77E-10	7.20E-10	1.58E-08	5.35E-09	1.19E-09
1.33E-09	1.03E-09	8.19E-10	1.26E-09	8.83E-10	8.27E-10	1.60E-08	5.63E-09	1.57E-09
1.27E-09	9.13E-10	9.92E-10	1.23E-09	8.12E-10	1.01E-09	1.57E-08	5.39E-09	1.33E-09
1.33E-09	9.68E-10	8.85E-10	1.65E-09	9.16E-10	8.45E-10	1.61E-08	5.57E-09	1.90E-09
9.88E-10	9.50E-10	7.89E-10	1.16E-09	7.54E-10	5.54E-10	1.56E-08	5.18E-09	1.28E-09
1.22E-09	9.20E-10	9.96E-10	1.30E-09	1.19E-09	1.11E-09	1.58E-08	5.49E-09	1.30E-09
1.26E-09	1.13E-09	9.94E-10	1.11E-09	1.01E-09	1.04E-09	1.58E-08	5.35E-09	1.50E-09
1.35E-09	1.40E-09	1.17E-09	1.49E-09	9.20E-10	1.03E-09	1.58E-08	5.32E-09	1.27E-09
1.16E-09	1.35E-09	1.18E-09	1.40E-09	9.19E-10	7.93E-10	1.56E-08	5.33E-09	1.22E-09
1.93E-09	1.33E-09	1.47E-09	1.72E-09	1.15E-09	1.18E-09	1.58E-08	5.41E-09	1.50E-09
1.51E-09	1.14E-09	1.17E-09	1.37E-09	8.12E-10	8.71E-10	1.59E-08	5.28E-09	1.42E-09
1.08E-09	9.03E-10	1.17E-09	1.49E-09	5.93E-10	5.91E-10	1.61E-08	5.44E-09	1.41E-09
1.37E-09	9.35E-10	1.06E-09	1.59E-09	1.23E-09	1.06E-09	1.59E-08	5.34E-09	1.21E-09
1.22E-09	1.59E-09	9.13E-10	1.52E-09	1.05E-09	9.23E-10	1.58E-08	5.48E-09	1.31E-09
1.14E-09	1.10E-09	9.39E-10	1.39E-09	7.95E-10	8.16E-10	1.57E-08	5.36E-09	1.29E-09
1.31E-09	1.04E-09	1.05E-09	1.39E-09	8.79E-10	8.48E-10	1.56E-08	5.34E-09	1.32E-09
1.23E-09	1.01E-09	9.97E-10	1.43E-09	6.57E-10	7.61E-10	1.58E-08	5.51E-09	1.18E-09
1.45E-09	1.11E-09	1.38E-09	1.36E-09	7.36E-10	9.14E-10	1.60E-08	5.40E-09	1.45E-09
1.24E-09	8.75E-10	8.32E-10	1.14E-09	8.38E-10	1.12E-09	1.58E-08	5.27E-09	1.23E-09
1.70E-09	1.22E-09	1.05E-09	1.46E-09	8.19E-10	9.35E-10	1.57E-08	5.28E-09	1.31E-09
1.55E-09	1.30E-09	1.24E-09	1.62E-09	6.34E-10	8.59E-10	1.59E-08	5.36E-09	1.72E-09
1.26E-09	1.18E-09	9.40E-10	1.30E-09	8.51E-10	7.21E-10	1.59E-08	5.48E-09	1.39E-09
1.03E-09	9.24E-10	8.94E-10	1.35E-09	9.48E-10	6.74E-10	1.57E-08	5.08E-09	1.40E-09
1.38E-09	8.84E-10	9.84E-10	1.57E-09	8.54E-10	7.07E-10	1.60E-08	5.57E-09	1.53E-09
1.38E-09	1.34E-09	1.16E-09	1.20E-09	9.87E-10	9.34E-10	1.57E-08	5.12E-09	1.36E-09
1.03E-09	8.16E-10	7.46E-10	1.24E-09	1.00E-09	7.81E-10	1.58E-08	4.97E-09	1.31E-09
1.30E-09	1.06E-09	9.04E-10	1.45E-09	9.40E-10	1.02E-09	1.57E-08	5.21E-09	1.50E-09
1.48E-09	1.04E-09	9.60E-10	1.56E-09	9.19E-10	1.06E-09	1.58E-08	5.75E-09	1.28E-09
1.01E-09	9.69E-10	1.08E-09	1.24E-09	9.46E-10	5.81E-10	1.59E-08	5.49E-09	1.33E-09
1.39E-09	1.13E-09	1.10E-09	1.42E-09	9.62E-10	1.20E-09	1.57E-08	5.21E-09	1.18E-09
1.50E-09	1.09E-09	1.17E-09	1.59E-09	9.81E-10	7.39E-10	1.59E-08	5.32E-09	1.42E-09
1.38E-09	9.45E-10	1.14E-09	1.32E-09	9.42E-10	9.74E-10	1.60E-08	5.24E-09	1.42E-09
1.12E-09	9.49E-10	6.89E-10	1.31E-09	1.07E-09	7.47E-10	1.60E-08	5.36E-09	1.44E-09
1.30E-09	1.14E-09	9.68E-10	1.08E-09	1.09E-09	1.23E-09	1.58E-08	5.31E-09	1.47E-09
1.40E-09	1.03E-09	1.14E-09	1.37E-09	1.03E-09	7.55E-10	1.56E-08	5.38E-09	1.22E-09
1.66E-09	1.36E-09	1.24E-09	1.24E-09	1.09E-09	7.58E-10	1.60E-08	5.35E-09	1.33E-09
1.54E-09	1.42E-09	1.15E-09	1.29E-09	6.39E-10	5.41E-10	1.55E-08	5.25E-09	1.23E-09
1.28E-09	1.27E-09	1.01E-09	1.24E-09	8.46E-10	8.31E-10	1.60E-08	5.45E-09	1.50E-09
1.50E-09	1.50E-09	1.69E-09	1.65E-09	9.07E-10	6.46E-10	1.63E-08	5.64E-09	1.83E-09
1.07E-09	1.37E-09	1.08E-09	1.53E-09	9.73E-10	1.01E-09	1.57E-08	5.40E-09	9.71E-10
1.32E-09	9.67E-10	8.80E-10	1.10E-09	1.01E-09	8.14E-10	1.58E-08	5.29E-09	1.26E-09
1.34E-09	8.64E-10	9.92E-10	1.44E-09	8.46E-10	8.37E-10	1.56E-08	5.02E-09	1.16E-09
1.06E-09	9.73E-10	9.13E-10	1.18E-09	9.67E-10	9.96E-10	1.58E-08	5.41E-09	1.28E-09
1.54E-09	1.02E-09	1.04E-09	1.23E-09	9.57E-10	8.55E-10	1.59E-08	5.51E-09	1.39E-09

1.29E-09	1.05E-09	1.02E-09	1.50E-09	1.01E-09	1.23E-09	1.57E-08	5.36E-09	1.21E-09
1.58E-09	1.27E-09	1.05E-09	1.51E-09	1.34E-09	1.07E-09	1.56E-08	5.31E-09	1.59E-09
1.35E-09	1.30E-09	1.31E-09	1.50E-09	9.74E-10	8.03E-10	1.57E-08	5.26E-09	1.21E-09
1.26E-09	7.68E-10	1.08E-09	1.45E-09	1.20E-09	1.11E-09	1.59E-08	5.43E-09	1.32E-09
1.52E-09	1.22E-09	1.13E-09	1.38E-09	1.08E-09	9.65E-10	1.60E-08	5.43E-09	1.53E-09
1.14E-09	1.12E-09	9.18E-10	1.10E-09	8.11E-10	9.08E-10	1.58E-08	5.21E-09	1.57E-09
1.13E-09	1.01E-09	9.94E-10	1.39E-09	1.19E-09	9.17E-10	1.58E-08	5.40E-09	1.67E-09
9.85E-10	8.86E-10	8.72E-10	1.23E-09	1.10E-09	1.11E-09	1.58E-08	5.57E-09	1.18E-09
1.47E-09	9.47E-10	9.73E-10	1.18E-09	1.17E-09	1.03E-09	1.59E-08	5.22E-09	1.12E-09
1.32E-09	1.22E-09	1.27E-09	1.39E-09	6.62E-10	7.27E-10	1.56E-08	5.33E-09	1.32E-09
1.59E-09	1.27E-09	1.30E-09	1.28E-09	1.14E-09	9.98E-10	1.57E-08	5.53E-09	1.52E-09
1.57E-09	1.61E-09	1.24E-09	1.29E-09	1.31E-09	1.03E-09	1.57E-08	5.52E-09	1.28E-09
1.27E-09	1.33E-09	1.18E-09	1.35E-09	9.91E-10	7.96E-10	1.61E-08	5.37E-09	1.58E-09
1.20E-09	1.14E-09	1.21E-09	1.47E-09	8.23E-10	7.26E-10	1.60E-08	5.36E-09	1.26E-09
1.37E-09	1.19E-09	1.23E-09	1.16E-09	9.42E-10	9.61E-10	1.57E-08	5.53E-09	1.28E-09
1.07E-09	1.18E-09	8.36E-10	1.29E-09	7.79E-10	9.35E-10	1.57E-08	5.68E-09	1.12E-09
1.18E-09	1.11E-09	8.72E-10	1.28E-09	1.12E-09	9.52E-10	1.59E-08	5.22E-09	1.44E-09
1.06E-09	1.22E-09	1.03E-09	1.53E-09	9.35E-10	8.16E-10	1.57E-08	5.17E-09	1.19E-09
1.40E-09	1.06E-09	1.13E-09	1.29E-09	9.02E-10	9.51E-10	1.56E-08	5.21E-09	1.28E-09
1.68E-09	1.22E-09	1.36E-09	1.20E-09	7.20E-10	7.10E-10	1.57E-08	5.21E-09	1.33E-09
1.10E-09	1.05E-09	1.25E-09	1.20E-09	1.12E-09	6.15E-10	1.57E-08	5.31E-09	1.36E-09
1.07E-09	9.00E-10	7.96E-10	1.26E-09	7.94E-10	6.28E-10	1.59E-08	5.69E-09	1.38E-09
1.31E-09	1.00E-09	1.02E-09	1.66E-09	1.41E-09	7.98E-10	1.58E-08	5.11E-09	1.24E-09
1.31E-09	1.34E-09	1.29E-09	1.51E-09	7.67E-10	9.01E-10	1.60E-08	5.74E-09	1.45E-09
1.39E-09	1.19E-09	1.12E-09	1.48E-09	7.60E-10	9.09E-10	1.63E-08	5.26E-09	1.46E-09
1.42E-09	1.37E-09	1.18E-09	1.28E-09	7.04E-10	7.69E-10	1.60E-08	5.08E-09	1.24E-09
9.68E-10	1.07E-09	1.02E-09	1.41E-09	9.91E-10	9.79E-10	1.58E-08	5.31E-09	1.37E-09
1.41E-09	1.08E-09	9.18E-10	1.68E-09	8.80E-10	8.56E-10	1.59E-08	5.18E-09	1.34E-09
1.11E-09	9.09E-10	9.80E-10	1.16E-09	7.26E-10	8.57E-10	1.62E-08	5.52E-09	1.46E-09
1.46E-09	1.00E-09	1.06E-09	1.21E-09	7.96E-10	6.41E-10	1.59E-08	5.30E-09	1.23E-09
1.64E-09	1.33E-09	1.14E-09	1.44E-09	9.75E-10	8.21E-10	1.55E-08	5.17E-09	1.28E-09
9.43E-10	7.96E-10	1.00E-09	1.45E-09	1.16E-09	9.18E-10	1.61E-08	5.48E-09	1.54E-09
1.80E-09	1.57E-09	1.22E-09	1.69E-09	1.19E-09	8.37E-10	1.59E-08	5.46E-09	1.48E-09
1.38E-09	1.08E-09	8.92E-10	1.48E-09	1.04E-09	8.68E-10	1.58E-08	5.25E-09	1.27E-09
1.56E-09	1.10E-09	1.01E-09	1.42E-09	9.69E-10	8.20E-10	1.60E-08	5.36E-09	1.45E-09
1.17E-09	1.30E-09	1.15E-09	1.39E-09	9.54E-10	8.60E-10	1.61E-08	5.60E-09	1.59E-09
1.26E-09	1.02E-09	9.56E-10	1.54E-09	9.63E-10	1.07E-09	1.60E-08	5.47E-09	1.59E-09
1.18E-09	1.04E-09	1.05E-09	1.61E-09	6.01E-10	8.92E-10	1.58E-08	5.08E-09	1.23E-09
7.30E-10	7.81E-10	6.88E-10	1.61E-09	1.10E-09	8.92E-10	1.59E-08	5.14E-09	1.40E-09
1.24E-09	1.09E-09	1.11E-09	1.47E-09	9.81E-10	1.28E-09	1.62E-08	6.06E-09	1.86E-09
1.23E-09	1.13E-09	1.08E-09	1.53E-09	9.70E-10	1.27E-09	1.58E-08	5.23E-09	1.52E-09
1.56E-09	1.36E-09	1.20E-09	1.14E-09	9.42E-10	7.33E-10	1.57E-08	5.30E-09	1.36E-09
1.38E-09	1.13E-09	9.79E-10	1.47E-09	1.01E-09	9.73E-10	1.59E-08	5.36E-09	1.34E-09
1.30E-09	1.35E-09	1.19E-09	1.49E-09	8.64E-10	8.81E-10	1.56E-08	5.45E-09	1.27E-09
1.44E-09	9.80E-10	1.17E-09	1.76E-09	8.53E-10	7.27E-10	1.58E-08	5.45E-09	1.27E-09
1.35E-09	1.24E-09	9.65E-10	1.25E-09	1.02E-09	8.08E-10	1.58E-08	5.52E-09	1.64E-09
1.21E-09	1.17E-09	9.82E-10	1.21E-09	9.04E-10	9.34E-10	1.57E-08	5.12E-09	1.16E-09
1.27E-09	1.68E-09	1.02E-09	1.60E-09	1.03E-09	1.13E-09	1.58E-08	5.39E-09	1.21E-09
1.05E-09	9.40E-10	8.56E-10	1.40E-09	8.84E-10	8.98E-10	1.59E-08	5.78E-09	1.70E-09
1.07E-09	1.13E-09	1.11E-09	1.20E-09	8.11E-10	8.61E-10	1.58E-08	5.24E-09	1.40E-09

1.14E-09	1.16E-09	9.32E-10	1.30E-09	6.44E-10	8.87E-10	1.58E-08	5.49E-09	1.22E-09
9.36E-10	8.95E-10	7.61E-10	1.27E-09	1.41E-09	1.04E-09	1.57E-08	5.30E-09	1.27E-09
1.18E-09	1.15E-09	1.28E-09	1.37E-09	1.14E-09	9.20E-10	1.59E-08	5.49E-09	1.17E-09
1.49E-09	1.15E-09	1.15E-09	1.53E-09	8.95E-10	6.99E-10	1.62E-08	5.44E-09	1.61E-09
1.27E-09	1.06E-09	8.77E-10	1.36E-09	9.55E-10	8.27E-10	1.60E-08	5.53E-09	1.37E-09
1.30E-09	1.21E-09	9.75E-10	1.27E-09	1.12E-09	1.04E-09	1.59E-08	5.77E-09	1.58E-09
1.05E-09	1.07E-09	1.01E-09	1.28E-09	8.54E-10	6.93E-10	1.58E-08	5.46E-09	1.24E-09
1.22E-09	1.26E-09	1.03E-09	1.47E-09	1.06E-09	7.96E-10	1.57E-08	5.17E-09	1.13E-09
1.18E-09	1.13E-09	1.08E-09	1.46E-09	1.05E-09	9.47E-10	1.59E-08	5.50E-09	1.44E-09
1.07E-09	1.05E-09	1.14E-09	1.24E-09	7.42E-10	7.62E-10	1.56E-08	5.42E-09	1.39E-09
1.16E-09	1.07E-09	1.02E-09	1.25E-09	1.06E-09	1.04E-09	1.60E-08	5.73E-09	1.50E-09
1.24E-09	1.06E-09	9.50E-10	1.29E-09	8.22E-10	8.93E-10	1.57E-08	5.32E-09	1.06E-09
1.22E-09	1.06E-09	1.00E-09	1.46E-09	9.22E-10	1.00E-09	1.59E-08	5.27E-09	1.42E-09
1.25E-09	1.10E-09	1.10E-09	1.29E-09	1.13E-09	8.29E-10	1.58E-08	5.37E-09	1.35E-09
1.40E-09	1.09E-09	1.08E-09	1.27E-09	8.72E-10	7.39E-10	1.59E-08	5.77E-09	1.47E-09
1.34E-09	1.10E-09	1.15E-09	1.53E-09	8.03E-10	1.02E-09	1.60E-08	5.86E-09	1.53E-09
1.28E-09	1.08E-09	1.00E-09	1.32E-09	1.02E-09	8.31E-10	1.56E-08	5.19E-09	1.13E-09
1.37E-09	1.01E-09	1.19E-09	1.27E-09	9.18E-10	8.84E-10	1.59E-08	5.35E-09	1.41E-09
9.37E-10	8.78E-10	9.47E-10	1.27E-09	8.31E-10	8.00E-10	1.58E-08	5.40E-09	1.28E-09
9.42E-10	6.18E-10	9.11E-10	1.45E-09	1.21E-09	1.11E-09	1.57E-08	5.47E-09	1.41E-09
1.10E-09	1.03E-09	8.91E-10	1.40E-09	7.83E-10	1.01E-09	1.61E-08	5.57E-09	1.91E-09
1.28E-09	1.25E-09	1.05E-09	1.30E-09	1.07E-09	8.19E-10	1.59E-08	5.20E-09	1.14E-09
1.35E-09	1.21E-09	1.35E-09	1.32E-09	7.45E-10	7.32E-10	1.57E-08	5.20E-09	1.33E-09
1.43E-09	1.26E-09	1.12E-09	1.43E-09	8.64E-10	1.16E-09	1.58E-08	5.45E-09	1.23E-09
1.32E-09	1.04E-09	1.08E-09	1.76E-09	1.34E-09	1.14E-09	1.57E-08	5.33E-09	1.45E-09
1.37E-09	8.31E-10	1.06E-09	1.89E-09	8.82E-10	8.92E-10	1.58E-08	5.19E-09	1.50E-09
1.34E-09	1.11E-09	1.18E-09	1.36E-09	1.37E-09	1.13E-09	1.60E-08	5.48E-09	1.31E-09
1.30E-09	9.42E-10	9.43E-10	1.34E-09	9.56E-10	1.14E-09	1.58E-08	5.46E-09	1.46E-09
1.09E-09	1.21E-09	7.65E-10	1.42E-09	1.15E-09	9.81E-10	1.60E-08	5.34E-09	1.27E-09
1.48E-09	1.21E-09	1.05E-09	1.39E-09	8.34E-10	8.48E-10	1.58E-08	5.17E-09	1.10E-09
1.45E-09	1.21E-09	1.20E-09	1.33E-09	8.73E-10	7.39E-10	1.57E-08	5.11E-09	1.21E-09
1.21E-09	1.03E-09	9.24E-10	1.35E-09	8.63E-10	7.14E-10	1.58E-08	5.27E-09	1.08E-09
1.56E-09	1.02E-09	9.94E-10	1.01E-09	9.64E-10	8.97E-10	1.58E-08	5.28E-09	1.30E-09
1.40E-09	1.14E-09	1.12E-09	1.34E-09	8.68E-10	7.58E-10	1.60E-08	5.56E-09	1.40E-09
1.29E-09	1.24E-09	1.02E-09	1.40E-09	1.05E-09	8.73E-10	1.62E-08	5.39E-09	1.66E-09
1.87E-09	1.52E-09	1.53E-09	1.34E-09	1.13E-09	8.01E-10	1.61E-08	5.60E-09	1.57E-09
1.67E-09	1.34E-09	9.69E-10	1.60E-09	1.06E-09	8.03E-10	1.58E-08	5.29E-09	1.03E-09
1.05E-09	7.53E-10	8.90E-10	1.70E-09	9.65E-10	1.11E-09	1.58E-08	5.46E-09	1.48E-09
1.39E-09	1.17E-09	9.83E-10	1.40E-09	8.91E-10	7.55E-10	1.58E-08	5.45E-09	1.26E-09
1.42E-09	1.21E-09	1.32E-09	1.18E-09	9.98E-10	9.40E-10	1.57E-08	5.33E-09	1.22E-09
1.31E-09	9.39E-10	1.06E-09	1.10E-09	7.44E-10	6.13E-10	1.58E-08	5.37E-09	1.17E-09
9.97E-10	1.07E-09	8.28E-10	1.45E-09	1.07E-09	9.73E-10	1.59E-08	5.35E-09	1.36E-09
1.10E-09	7.55E-10	7.47E-10	1.26E-09	9.67E-10	9.51E-10	1.58E-08	5.18E-09	1.30E-09
1.89E-09	1.32E-09	1.01E-09	1.57E-09	7.86E-10	1.09E-09	1.58E-08	5.37E-09	1.08E-09
1.12E-09	1.03E-09	7.58E-10	1.35E-09	8.19E-10	8.72E-10	1.59E-08	5.25E-09	1.22E-09
1.18E-09	9.48E-10	7.79E-10	1.65E-09	1.04E-09	1.02E-09	1.60E-08	5.30E-09	1.30E-09
1.20E-09	1.03E-09	9.14E-10	1.44E-09	8.83E-10	8.23E-10	1.59E-08	5.23E-09	1.19E-09
1.45E-09	1.24E-09	1.02E-09	1.57E-09	9.82E-10	6.78E-10	1.59E-08	5.23E-09	1.32E-09
1.29E-09	1.45E-09	1.14E-09	1.21E-09	6.93E-10	8.76E-10	1.61E-08	5.86E-09	1.65E-09
1.22E-09	9.90E-10	1.13E-09	1.55E-09	1.12E-09	9.48E-10	1.58E-08	5.53E-09	1.40E-09

1.27E-09	8.26E-10	1.11E-09	1.38E-09	1.21E-09	8.80E-10	1.60E-08	5.71E-09	1.45E-09
1.19E-09	1.01E-09	9.38E-10	1.35E-09	7.77E-10	6.60E-10	1.59E-08	5.26E-09	1.18E-09
1.53E-09	1.33E-09	1.48E-09	1.15E-09	9.61E-10	7.09E-10	1.57E-08	5.30E-09	1.36E-09
1.26E-09	1.13E-09	7.53E-10	1.40E-09	8.08E-10	8.29E-10	1.61E-08	5.16E-09	1.37E-09
1.48E-09	1.11E-09	1.14E-09	1.21E-09	8.57E-10	8.64E-10	1.58E-08	5.45E-09	1.47E-09
1.15E-09	1.18E-09	1.09E-09	1.20E-09	1.05E-09	1.06E-09	1.56E-08	5.43E-09	1.47E-09
1.29E-09	8.29E-10	9.07E-10	1.76E-09	1.27E-09	9.63E-10	1.58E-08	5.43E-09	1.59E-09
1.26E-09	8.74E-10	8.18E-10	1.34E-09	9.29E-10	8.61E-10	1.60E-08	5.32E-09	1.28E-09
1.45E-09	1.19E-09	1.25E-09	1.57E-09	1.04E-09	1.04E-09	1.57E-08	5.21E-09	1.20E-09
1.29E-09	9.81E-10	1.39E-09	1.49E-09	8.62E-10	7.72E-10	1.59E-08	5.29E-09	1.10E-09
1.16E-09	9.93E-10	1.13E-09	1.12E-09	6.97E-10	9.75E-10	1.62E-08	5.61E-09	1.53E-09
1.15E-09	8.32E-10	7.09E-10	1.43E-09	9.84E-10	7.62E-10	1.57E-08	5.04E-09	1.29E-09
1.05E-09	1.08E-09	8.94E-10	1.14E-09	1.07E-09	8.75E-10	1.59E-08	5.52E-09	1.24E-09
1.13E-09	8.16E-10	8.96E-10	1.31E-09	1.04E-09	7.54E-10	1.57E-08	5.29E-09	1.31E-09
1.13E-09	8.76E-10	9.39E-10	1.16E-09	6.31E-10	5.29E-10	1.62E-08	5.46E-09	1.48E-09
1.19E-09	1.17E-09	9.88E-10	1.38E-09	8.42E-10	7.83E-10	1.57E-08	5.23E-09	1.31E-09
1.32E-09	1.19E-09	1.08E-09	1.26E-09	8.80E-10	8.06E-10	1.62E-08	5.42E-09	1.53E-09
1.41E-09	1.37E-09	1.06E-09	1.41E-09	9.96E-10	9.80E-10	1.61E-08	5.09E-09	1.25E-09
1.41E-09	1.23E-09	1.22E-09	1.24E-09	8.67E-10	7.54E-10	1.60E-08	5.32E-09	1.26E-09
1.03E-09	8.37E-10	9.52E-10	1.50E-09	7.69E-10	9.02E-10	1.58E-08	5.22E-09	1.40E-09
1.52E-09	1.38E-09	8.65E-10	1.33E-09	6.85E-10	8.02E-10	1.58E-08	5.24E-09	1.35E-09
1.23E-09	1.00E-09	1.04E-09	1.40E-09	9.11E-10	8.96E-10	1.58E-08	5.43E-09	1.30E-09
1.16E-09	9.46E-10	1.03E-09	1.19E-09	7.88E-10	6.19E-10	1.58E-08	5.48E-09	1.21E-09
1.71E-09	1.31E-09	1.16E-09	1.37E-09	8.27E-10	9.20E-10	1.58E-08	5.36E-09	1.56E-09
1.23E-09	1.09E-09	1.05E-09	1.16E-09	9.28E-10	8.53E-10	1.59E-08	5.28E-09	1.17E-09
1.70E-09	1.45E-09	1.41E-09	1.23E-09	1.18E-09	9.75E-10	1.60E-08	5.60E-09	1.48E-09
1.28E-09	1.03E-09	1.16E-09	1.34E-09	1.02E-09	9.64E-10	1.57E-08	5.31E-09	1.21E-09
1.24E-09	8.87E-10	9.37E-10	1.25E-09	9.11E-10	7.79E-10	1.59E-08	5.35E-09	1.29E-09
1.33E-09	1.13E-09	1.24E-09	1.24E-09	1.33E-09	9.93E-10	1.58E-08	5.35E-09	1.51E-09
1.30E-09	1.12E-09	9.18E-10	1.05E-09	1.40E-09	1.09E-09	1.58E-08	5.25E-09	9.17E-10
1.25E-09	9.62E-10	1.03E-09	1.57E-09	1.04E-09	1.01E-09	1.57E-08	5.42E-09	1.37E-09
1.27E-09	1.01E-09	1.20E-09	1.52E-09	7.03E-10	8.45E-10	1.57E-08	5.28E-09	1.18E-09
1.07E-09	1.04E-09	1.06E-09	1.53E-09	9.76E-10	8.57E-10	1.59E-08	5.44E-09	1.31E-09
1.38E-09	9.86E-10	9.98E-10	1.32E-09	9.21E-10	7.23E-10	1.59E-08	5.62E-09	1.42E-09
1.17E-09	1.10E-09	1.02E-09	1.39E-09	1.02E-09	9.40E-10	1.60E-08	5.35E-09	1.40E-09
1.21E-09	1.01E-09	1.05E-09	1.36E-09	8.38E-10	9.32E-10	1.56E-08	5.01E-09	1.02E-09
1.39E-09	1.17E-09	1.12E-09	1.20E-09	1.05E-09	7.52E-10	1.60E-08	5.32E-09	1.21E-09
1.46E-09	1.22E-09	1.09E-09	1.48E-09	1.03E-09	7.48E-10	1.57E-08	5.04E-09	1.17E-09
1.47E-09	1.25E-09	9.47E-10	1.64E-09	1.25E-09	9.34E-10	1.59E-08	5.53E-09	1.59E-09
1.13E-09	7.26E-10	7.18E-10	1.68E-09	1.11E-09	1.08E-09	1.55E-08	5.26E-09	1.17E-09
1.61E-09	1.25E-09	1.38E-09	1.43E-09	7.12E-10	1.03E-09	1.59E-08	5.14E-09	1.28E-09
9.53E-10	9.53E-10	8.08E-10	1.34E-09	7.61E-10	1.04E-09	1.62E-08	5.45E-09	1.67E-09
1.19E-09	9.92E-10	1.05E-09	1.47E-09	1.14E-09	9.21E-10	1.61E-08	5.01E-09	1.11E-09
1.08E-09	8.73E-10	9.56E-10	1.16E-09	6.58E-10	9.34E-10	1.58E-08	5.29E-09	1.57E-09
9.45E-10	8.05E-10	8.30E-10	1.10E-09	7.32E-10	6.94E-10	1.59E-08	5.32E-09	1.31E-09
1.18E-09	1.20E-09	8.31E-10	1.46E-09	1.07E-09	1.28E-09	1.59E-08	5.42E-09	1.43E-09
1.14E-09	9.34E-10	1.20E-09	1.36E-09	7.30E-10	1.24E-09	1.59E-08	5.30E-09	1.21E-09
1.41E-09	1.13E-09	1.15E-09	1.14E-09	1.10E-09	7.82E-10	1.58E-08	5.59E-09	1.59E-09
1.17E-09	9.43E-10	8.25E-10	1.63E-09	8.19E-10	6.94E-10	1.59E-08	5.33E-09	1.20E-09
1.58E-09	1.30E-09	1.25E-09	1.27E-09	1.36E-09	1.05E-09	1.58E-08	5.14E-09	1.45E-09

1.51E-09	1.08E-09	1.04E-09	1.52E-09	1.20E-09	8.89E-10	1.57E-08	5.37E-09	1.45E-09
1.34E-09	1.02E-09	8.60E-10	1.38E-09	8.99E-10	1.24E-09	1.61E-08	5.38E-09	1.34E-09
1.37E-09	1.16E-09	1.28E-09	1.54E-09	1.11E-09	8.39E-10	1.61E-08	5.43E-09	1.80E-09
1.21E-09	8.63E-10	1.01E-09	1.51E-09	8.48E-10	8.47E-10	1.61E-08	5.47E-09	1.64E-09
1.12E-09	9.56E-10	9.88E-10	1.39E-09	1.01E-09	1.16E-09	1.56E-08	5.31E-09	1.44E-09
1.84E-09	1.61E-09	1.48E-09	1.58E-09	1.06E-09	9.90E-10	1.61E-08	5.58E-09	1.54E-09
1.33E-09	1.48E-09	1.60E-09	1.16E-09	9.28E-10	1.22E-09	1.58E-08	5.48E-09	1.47E-09
1.07E-09	1.09E-09	8.94E-10	1.53E-09	1.16E-09	1.09E-09	1.57E-08	5.12E-09	1.29E-09
9.21E-10	7.48E-10	7.81E-10	1.60E-09	9.80E-10	7.69E-10	1.58E-08	5.36E-09	1.40E-09
1.40E-09	1.08E-09	8.41E-10	1.19E-09	1.08E-09	8.05E-10	1.58E-08	5.49E-09	1.62E-09
1.58E-09	1.28E-09	1.22E-09	1.50E-09	9.83E-10	7.67E-10	1.60E-08	5.33E-09	1.50E-09
1.49E-09	1.39E-09	1.15E-09	1.55E-09	8.24E-10	1.01E-09	1.57E-08	5.43E-09	1.35E-09
1.34E-09	1.40E-09	1.17E-09	1.62E-09	9.59E-10	9.13E-10	1.59E-08	4.82E-09	1.00E-09
1.02E-09	9.74E-10	9.44E-10	1.31E-09	6.98E-10	9.21E-10	1.62E-08	5.28E-09	1.42E-09
1.13E-09	1.02E-09	8.16E-10	1.22E-09	1.05E-09	8.74E-10	1.60E-08	5.59E-09	1.48E-09
1.18E-09	9.65E-10	9.06E-10	1.65E-09	8.91E-10	8.31E-10	1.60E-08	5.26E-09	1.52E-09
1.27E-09	1.17E-09	1.11E-09	1.64E-09	9.07E-10	7.80E-10	1.57E-08	5.10E-09	1.14E-09
1.47E-09	1.60E-09	1.02E-09	1.43E-09	1.34E-09	1.00E-09	1.58E-08	5.39E-09	1.12E-09
1.20E-09	1.07E-09	8.74E-10	1.16E-09	9.51E-10	8.87E-10	1.58E-08	5.34E-09	1.20E-09
1.16E-09	9.95E-10	1.09E-09	1.28E-09	9.05E-10	9.33E-10	1.57E-08	5.13E-09	1.17E-09
1.25E-09	1.06E-09	9.96E-10	1.33E-09	6.72E-10	5.14E-10	1.60E-08	5.31E-09	1.41E-09
1.28E-09	9.89E-10	9.29E-10	1.37E-09	1.12E-09	9.22E-10	1.59E-08	5.29E-09	1.45E-09
1.10E-09	9.93E-10	9.32E-10	1.34E-09	7.20E-10	9.14E-10	1.59E-08	5.37E-09	1.16E-09
1.28E-09	1.38E-09	8.11E-10	1.17E-09	9.08E-10	9.38E-10	1.59E-08	5.43E-09	1.38E-09
1.39E-09	1.32E-09	1.06E-09	1.44E-09	7.96E-10	8.61E-10	1.56E-08	5.25E-09	1.08E-09
1.32E-09	1.14E-09	1.06E-09	1.58E-09	1.30E-09	9.46E-10	1.58E-08	5.24E-09	1.35E-09
1.06E-09	9.41E-10	9.17E-10	1.56E-09	1.17E-09	8.47E-10	1.55E-08	5.17E-09	1.13E-09
1.18E-09	1.13E-09	8.34E-10	1.32E-09	1.01E-09	1.27E-09	1.58E-08	5.45E-09	1.63E-09
1.39E-09	1.37E-09	1.10E-09	1.29E-09	1.02E-09	9.01E-10	1.59E-08	5.32E-09	1.48E-09
1.14E-09	9.12E-10	7.76E-10	1.32E-09	8.79E-10	1.02E-09	1.60E-08	5.28E-09	1.21E-09
1.30E-09	9.01E-10	1.03E-09	1.40E-09	9.57E-10	8.12E-10	1.56E-08	5.17E-09	1.02E-09
1.45E-09	9.25E-10	1.02E-09	1.42E-09	8.75E-10	8.33E-10	1.56E-08	5.03E-09	1.16E-09
1.24E-09	1.02E-09	1.13E-09	1.39E-09	8.51E-10	6.01E-10	1.59E-08	5.27E-09	1.37E-09
1.18E-09	1.06E-09	1.03E-09	1.58E-09	1.07E-09	1.00E-09	1.59E-08	5.20E-09	1.38E-09
1.23E-09	8.81E-10	8.29E-10	1.40E-09	9.56E-10	8.96E-10	1.60E-08	5.43E-09	1.32E-09
1.74E-09	1.60E-09	1.28E-09	1.38E-09	8.73E-10	8.90E-10	1.65E-08	5.67E-09	1.82E-09
1.02E-09	9.25E-10	9.96E-10	1.40E-09	7.55E-10	6.77E-10	1.56E-08	5.41E-09	1.27E-09
1.08E-09	1.00E-09	9.02E-10	1.39E-09	9.07E-10	7.67E-10	1.57E-08	5.33E-09	1.15E-09
1.23E-09	1.24E-09	8.81E-10	1.39E-09	9.30E-10	1.07E-09	1.56E-08	5.27E-09	1.15E-09
1.35E-09	9.09E-10	1.09E-09	1.48E-09	8.30E-10	8.73E-10	1.59E-08	5.11E-09	1.17E-09
1.15E-09	1.01E-09	1.20E-09	1.15E-09	9.13E-10	1.01E-09	1.56E-08	5.41E-09	1.49E-09
9.57E-10	7.72E-10	6.58E-10	1.74E-09	9.73E-10	7.39E-10	1.57E-08	5.02E-09	1.11E-09
1.38E-09	1.15E-09	1.04E-09	1.56E-09	6.96E-10	8.80E-10	1.59E-08	5.15E-09	1.11E-09
1.43E-09	9.92E-10	9.80E-10	1.43E-09	1.02E-09	1.09E-09	1.59E-08	5.23E-09	1.31E-09
1.21E-09	1.10E-09	9.52E-10	1.27E-09	6.68E-10	9.96E-10	1.57E-08	5.48E-09	1.05E-09
1.18E-09	8.60E-10	8.32E-10	1.32E-09	9.00E-10	8.03E-10	1.62E-08	5.48E-09	1.23E-09
1.65E-09	1.27E-09	1.20E-09	1.49E-09	9.72E-10	1.13E-09	1.57E-08	5.06E-09	9.28E-10
1.14E-09	1.01E-09	9.24E-10	1.49E-09	9.79E-10	1.14E-09	1.62E-08	5.64E-09	1.56E-09
1.25E-09	1.16E-09	1.21E-09	1.44E-09	1.00E-09	5.67E-10	1.59E-08	5.69E-09	1.42E-09
1.33E-09	1.01E-09	1.12E-09	1.45E-09	9.27E-10	9.13E-10	1.58E-08	5.31E-09	1.34E-09

1.12E-09	9.66E-10	9.63E-10	1.44E-09	1.08E-09	1.02E-09	1.59E-08	5.36E-09	1.53E-09
1.25E-09	1.07E-09	7.61E-10	1.30E-09	7.07E-10	7.39E-10	1.58E-08	5.65E-09	1.79E-09
9.25E-10	1.07E-09	9.03E-10	1.58E-09	8.54E-10	9.92E-10	1.59E-08	5.57E-09	1.27E-09
1.13E-09	8.47E-10	8.67E-10	1.37E-09	7.75E-10	9.12E-10	1.57E-08	5.10E-09	1.10E-09
1.15E-09	1.08E-09	1.22E-09	1.34E-09	8.38E-10	1.00E-09	1.60E-08	5.54E-09	1.69E-09
1.05E-09	8.46E-10	1.25E-09	1.36E-09	9.80E-10	7.59E-10	1.58E-08	5.16E-09	1.09E-09
1.01E-09	8.44E-10	9.19E-10	1.67E-09	1.22E-09	7.59E-10	1.57E-08	5.46E-09	1.26E-09
1.06E-09	1.09E-09	9.05E-10	1.55E-09	1.11E-09	1.45E-09	1.60E-08	5.25E-09	1.50E-09
1.34E-09	1.14E-09	1.08E-09	1.10E-09	1.08E-09	1.30E-09	1.59E-08	5.45E-09	1.27E-09
1.44E-09	9.25E-10	9.64E-10	1.45E-09	1.43E-09	1.27E-09	1.58E-08	5.40E-09	1.48E-09
1.37E-09	1.21E-09	1.07E-09	1.31E-09	8.41E-10	6.92E-10	1.60E-08	5.30E-09	1.40E-09
1.16E-09	1.02E-09	1.05E-09	1.50E-09	1.02E-09	9.72E-10	1.60E-08	4.99E-09	1.19E-09
1.29E-09	9.99E-10	9.03E-10	1.28E-09	9.98E-10	9.35E-10	1.57E-08	5.45E-09	1.42E-09
1.85E-09	1.39E-09	9.89E-10	1.42E-09	7.98E-10	1.20E-09	1.58E-08	5.43E-09	1.27E-09
1.09E-09	1.13E-09	1.12E-09	1.49E-09	1.10E-09	9.08E-10	1.55E-08	5.41E-09	1.17E-09
1.26E-09	1.31E-09	1.47E-09	1.41E-09	8.56E-10	8.21E-10	1.56E-08	5.55E-09	1.45E-09
1.36E-09	1.01E-09	9.53E-10	1.41E-09	1.01E-09	8.69E-10	1.60E-08	5.95E-09	1.48E-09
1.36E-09	1.17E-09	1.35E-09	1.38E-09	1.08E-09	9.32E-10	1.61E-08	5.58E-09	1.51E-09
1.17E-09	1.19E-09	1.09E-09	1.61E-09	8.77E-10	1.32E-09	1.56E-08	5.38E-09	1.24E-09
1.59E-09	1.20E-09	1.27E-09	1.30E-09	8.53E-10	1.01E-09	1.59E-08	5.48E-09	1.93E-09
1.36E-09	1.10E-09	1.72E-09	1.56E-09	8.63E-10	7.26E-10	1.60E-08	5.48E-09	1.52E-09
1.33E-09	1.07E-09	9.34E-10	1.47E-09	9.19E-10	9.34E-10	1.57E-08	5.29E-09	1.36E-09
1.15E-09	8.68E-10	9.91E-10	1.22E-09	6.99E-10	6.26E-10	1.58E-08	5.31E-09	1.25E-09
1.25E-09	1.02E-09	1.34E-09	1.80E-09	1.15E-09	1.05E-09	1.58E-08	5.35E-09	1.39E-09
1.14E-09	9.97E-10	1.22E-09	1.55E-09	1.26E-09	1.14E-09	1.55E-08	5.53E-09	1.27E-09
1.37E-09	1.00E-09	1.25E-09	1.68E-09	7.71E-10	1.01E-09	1.61E-08	5.54E-09	1.45E-09
1.24E-09	1.17E-09	1.03E-09	2.05E-09	1.29E-09	1.12E-09	1.62E-08	5.54E-09	1.18E-09
1.19E-09	1.14E-09	8.60E-10	1.53E-09	1.01E-09	8.54E-10	1.57E-08	5.31E-09	9.89E-10
1.41E-09	1.22E-09	1.25E-09	1.29E-09	6.71E-10	7.57E-10	1.59E-08	5.22E-09	1.23E-09
1.28E-09	1.09E-09	9.71E-10	1.20E-09	7.64E-10	6.58E-10	1.59E-08	5.32E-09	1.46E-09
1.30E-09	1.24E-09	8.73E-10	1.37E-09	8.69E-10	1.17E-09	1.58E-08	5.21E-09	1.30E-09
1.11E-09	1.12E-09	8.25E-10	1.44E-09	1.02E-09	1.16E-09	1.59E-08	5.06E-09	1.06E-09
1.12E-09	9.88E-10	9.72E-10	1.62E-09	1.05E-09	1.13E-09	1.56E-08	5.04E-09	1.34E-09
1.26E-09	1.29E-09	8.70E-10	1.22E-09	6.90E-10	7.90E-10	1.58E-08	5.31E-09	1.35E-09
1.02E-09	1.18E-09	1.00E-09	1.20E-09	8.15E-10	6.84E-10	1.58E-08	5.26E-09	1.16E-09
1.32E-09	1.06E-09	1.15E-09	1.48E-09	7.95E-10	7.89E-10	1.57E-08	5.44E-09	1.41E-09
1.75E-09	9.65E-10	1.43E-09	1.38E-09	7.75E-10	8.79E-10	1.59E-08	5.44E-09	1.59E-09
1.18E-09	1.03E-09	1.01E-09	1.08E-09	1.13E-09	9.17E-10	1.61E-08	5.79E-09	1.48E-09
1.16E-09	1.11E-09	9.44E-10	2.08E-09	1.20E-09	1.27E-09	1.57E-08	5.09E-09	1.31E-09
1.41E-09	1.20E-09	8.97E-10	2.08E-09	1.20E-09	1.19E-09	1.63E-08	5.60E-09	1.51E-09
1.35E-09	1.28E-09	1.09E-09	1.31E-09	9.12E-10	1.08E-09	1.57E-08	5.21E-09	9.84E-10
1.47E-09	1.12E-09	9.59E-10	1.33E-09	1.04E-09	9.02E-10	1.62E-08	5.56E-09	1.35E-09
1.19E-09	7.80E-10	9.41E-10	1.21E-09	6.63E-10	8.79E-10	1.62E-08	5.47E-09	1.38E-09
1.32E-09	1.14E-09	1.19E-09	1.24E-09	7.84E-10	1.01E-09	1.58E-08	4.96E-09	9.68E-10
1.28E-09	1.14E-09	1.06E-09	1.43E-09	9.22E-10	1.07E-09	1.56E-08	4.99E-09	1.12E-09
1.51E-09	1.30E-09	1.16E-09	1.43E-09	7.47E-10	8.19E-10	1.61E-08	5.34E-09	1.47E-09

APPENDIX H

**Raw reading for the 3 Detector
without Cooking Oil**

Sensor1 X	Sensor1 Y	Sensor1 Z	Sensor2 X	Sensor2 Y	Sensor2 Z	Sensor3 X	Sensor3 Y	Sensor3 Z
1.46E-09	9.93E-10	9.19E-10	1.99E-09	9.30E-10	1.09E-09	1.34E-08	5.39E-09	3.49E-09
1.35E-09	1.13E-09	1.21E-09	2.22E-09	1.18E-09	1.03E-09	1.34E-08	5.38E-09	4.16E-09
1.42E-09	1.30E-09	1.18E-09	1.84E-09	9.88E-10	1.10E-09	1.35E-08	5.09E-09	3.62E-09
1.52E-09	1.31E-09	1.04E-09	1.81E-09	1.07E-09	8.08E-10	1.35E-08	5.52E-09	3.70E-09
1.47E-09	9.23E-10	8.32E-10	2.07E-09	9.03E-10	9.91E-10	1.38E-08	5.46E-09	3.59E-09
1.78E-09	1.03E-09	1.03E-09	1.93E-09	1.23E-09	1.54E-09	1.34E-08	4.85E-09	3.67E-09
1.38E-09	1.07E-09	1.09E-09	2.02E-09	9.48E-10	9.88E-10	1.38E-08	5.67E-09	3.85E-09
1.38E-09	1.39E-09	1.28E-09	2.10E-09	7.63E-10	8.08E-10	1.33E-08	4.95E-09	3.58E-09
2.11E-09	1.90E-09	1.86E-09	2.20E-09	1.14E-09	9.25E-10	1.36E-08	5.36E-09	4.31E-09
1.35E-09	1.51E-09	1.17E-09	1.95E-09	9.81E-10	1.03E-09	1.37E-08	5.56E-09	3.54E-09
1.28E-09	1.09E-09	1.51E-09	2.13E-09	1.08E-09	1.21E-09	1.37E-08	5.08E-09	3.49E-09
1.78E-09	1.05E-09	1.00E-09	2.14E-09	9.23E-10	1.69E-09	1.35E-08	4.77E-09	3.69E-09
1.25E-09	9.47E-10	8.20E-10	1.86E-09	9.28E-10	9.22E-10	1.38E-08	5.23E-09	3.42E-09
2.14E-09	1.14E-09	1.32E-09	2.06E-09	8.79E-10	8.27E-10	1.39E-08	5.27E-09	3.95E-09
1.84E-09	1.34E-09	1.38E-09	2.35E-09	1.13E-09	1.09E-09	1.35E-08	5.00E-09	3.58E-09
1.55E-09	1.21E-09	1.21E-09	2.37E-09	1.13E-09	7.26E-10	1.37E-08	5.12E-09	3.35E-09
1.64E-09	1.12E-09	1.34E-09	2.34E-09	1.04E-09	1.23E-09	1.37E-08	5.24E-09	3.45E-09
1.86E-09	1.59E-09	1.60E-09	1.89E-09	1.00E-09	8.21E-10	1.37E-08	5.18E-09	3.54E-09
1.43E-09	9.74E-10	1.04E-09	2.14E-09	9.35E-10	9.00E-10	1.37E-08	5.25E-09	3.59E-09
1.32E-09	1.12E-09	1.11E-09	1.82E-09	6.57E-10	1.04E-09	1.34E-08	5.02E-09	3.88E-09
1.55E-09	1.10E-09	9.99E-10	1.83E-09	9.92E-10	8.30E-10	1.39E-08	5.40E-09	3.73E-09
1.50E-09	1.19E-09	1.09E-09	1.82E-09	9.16E-10	9.09E-10	1.37E-08	5.34E-09	3.96E-09
1.38E-09	1.08E-09	8.85E-10	2.34E-09	8.97E-10	9.40E-10	1.34E-08	4.91E-09	3.93E-09
1.27E-09	1.14E-09	1.12E-09	1.62E-09	8.78E-10	1.29E-09	1.36E-08	5.17E-09	3.96E-09
1.39E-09	1.07E-09	1.08E-09	1.79E-09	9.89E-10	1.07E-09	1.35E-08	4.76E-09	3.78E-09
1.56E-09	1.29E-09	1.26E-09	2.17E-09	1.04E-09	1.06E-09	1.37E-08	5.02E-09	3.66E-09
1.57E-09	1.26E-09	1.16E-09	2.01E-09	9.81E-10	1.11E-09	1.37E-08	5.20E-09	4.14E-09
1.36E-09	9.88E-10	1.22E-09	1.88E-09	9.75E-10	9.54E-10	1.36E-08	5.15E-09	3.64E-09
1.32E-09	9.05E-10	8.62E-10	2.45E-09	1.09E-09	1.33E-09	1.34E-08	5.20E-09	3.41E-09
1.47E-09	1.24E-09	1.42E-09	2.11E-09	9.01E-10	1.08E-09	1.35E-08	4.79E-09	3.75E-09
1.30E-09	9.16E-10	1.14E-09	2.02E-09	9.88E-10	1.21E-09	1.33E-08	5.39E-09	3.75E-09
1.58E-09	1.01E-09	1.09E-09	2.02E-09	9.44E-10	9.06E-10	1.38E-08	5.02E-09	3.35E-09
1.66E-09	1.42E-09	1.23E-09	1.93E-09	1.03E-09	8.66E-10	1.36E-08	5.32E-09	3.64E-09
1.22E-09	9.75E-10	1.38E-09	2.14E-09	9.62E-10	1.47E-09	1.38E-08	5.61E-09	3.55E-09
1.58E-09	8.98E-10	9.59E-10	1.89E-09	8.69E-10	1.16E-09	1.39E-08	5.28E-09	3.59E-09
1.32E-09	1.11E-09	9.97E-10	1.88E-09	6.42E-10	8.52E-10	1.39E-08	5.48E-09	3.58E-09
1.73E-09	1.20E-09	1.04E-09	1.87E-09	1.06E-09	1.19E-09	1.40E-08	5.50E-09	3.46E-09
1.22E-09	1.22E-09	1.10E-09	1.76E-09	1.12E-09	1.09E-09	1.37E-08	5.03E-09	3.82E-09
1.52E-09	9.18E-10	1.08E-09	2.04E-09	1.19E-09	9.39E-10	1.34E-08	5.20E-09	3.95E-09
1.43E-09	1.13E-09	1.09E-09	2.08E-09	9.90E-10	1.06E-09	1.38E-08	5.36E-09	3.52E-09
1.53E-09	1.10E-09	1.32E-09	1.81E-09	1.04E-09	9.12E-10	1.39E-08	5.41E-09	3.85E-09
1.32E-09	1.25E-09	1.29E-09	2.24E-09	1.24E-09	8.26E-10	1.37E-08	5.18E-09	3.63E-09
1.29E-09	8.35E-10	8.22E-10	1.95E-09	1.05E-09	1.14E-09	1.37E-08	5.28E-09	3.91E-09
1.54E-09	1.26E-09	1.19E-09	2.34E-09	1.09E-09	1.16E-09	1.36E-08	5.07E-09	3.64E-09
1.22E-09	1.06E-09	1.25E-09	2.45E-09	1.19E-09	1.33E-09	1.37E-08	5.17E-09	3.88E-09
1.42E-09	1.31E-09	9.58E-10	1.82E-09	1.12E-09	9.08E-10	1.42E-08	5.16E-09	3.48E-09
1.30E-09	1.01E-09	9.43E-10	1.99E-09	1.20E-09	9.86E-10	1.36E-08	4.94E-09	3.72E-09
1.64E-09	1.08E-09	1.30E-09	2.20E-09	1.23E-09	9.34E-10	1.34E-08	5.30E-09	3.46E-09
1.35E-09	1.25E-09	1.10E-09	2.21E-09	9.27E-10	9.31E-10	1.37E-08	5.22E-09	4.09E-09

1.37E-09	8.80E-10	1.07E-09	2.02E-09	1.19E-09	1.05E-09	1.37E-08	5.22E-09	3.80E-09
1.44E-09	1.12E-09	1.26E-09	2.18E-09	1.03E-09	9.85E-10	1.34E-08	4.77E-09	3.71E-09
1.24E-09	9.65E-10	1.49E-09	2.10E-09	9.02E-10	1.28E-09	1.37E-08	5.09E-09	3.68E-09
1.64E-09	1.02E-09	9.84E-10	1.85E-09	9.14E-10	9.80E-10	1.34E-08	5.16E-09	3.40E-09
1.54E-09	9.63E-10	9.54E-10	1.89E-09	6.61E-10	9.90E-10	1.34E-08	5.08E-09	3.59E-09
1.27E-09	1.22E-09	1.19E-09	2.23E-09	1.03E-09	1.08E-09	1.39E-08	4.99E-09	3.64E-09
1.38E-09	1.50E-09	1.07E-09	2.11E-09	1.10E-09	8.72E-10	1.35E-08	4.90E-09	3.76E-09
1.55E-09	1.28E-09	9.54E-10	2.09E-09	7.94E-10	1.02E-09	1.38E-08	5.29E-09	3.57E-09
1.47E-09	1.22E-09	1.15E-09	1.81E-09	7.96E-10	1.02E-09	1.35E-08	5.13E-09	3.42E-09
1.54E-09	1.01E-09	8.55E-10	1.71E-09	7.64E-10	1.35E-09	1.36E-08	5.18E-09	3.71E-09
1.45E-09	1.09E-09	1.04E-09	2.24E-09	1.03E-09	1.20E-09	1.36E-08	5.15E-09	3.89E-09
1.43E-09	9.40E-10	1.22E-09	1.80E-09	9.77E-10	9.44E-10	1.35E-08	4.85E-09	3.63E-09
1.42E-09	1.28E-09	1.32E-09	1.82E-09	9.25E-10	1.36E-09	1.37E-08	4.91E-09	3.88E-09
1.13E-09	9.74E-10	7.92E-10	1.86E-09	8.06E-10	7.62E-10	1.34E-08	5.06E-09	3.77E-09
1.57E-09	1.10E-09	1.51E-09	1.86E-09	1.04E-09	1.18E-09	1.34E-08	4.97E-09	3.71E-09
1.34E-09	9.44E-10	9.20E-10	2.36E-09	9.67E-10	1.06E-09	1.40E-08	5.14E-09	4.19E-09
1.32E-09	9.09E-10	9.08E-10	2.08E-09	7.65E-10	1.15E-09	1.38E-08	5.71E-09	3.88E-09
1.47E-09	1.36E-09	1.42E-09	2.28E-09	9.03E-10	1.06E-09	1.37E-08	4.96E-09	3.44E-09
1.76E-09	1.12E-09	1.58E-09	2.26E-09	1.27E-09	1.22E-09	1.36E-08	5.08E-09	3.35E-09
1.63E-09	1.33E-09	9.97E-10	2.18E-09	1.37E-09	1.09E-09	1.33E-08	5.08E-09	3.78E-09
1.45E-09	1.09E-09	1.29E-09	1.85E-09	6.61E-10	9.46E-10	1.37E-08	5.05E-09	3.61E-09
1.50E-09	1.32E-09	1.56E-09	2.10E-09	1.07E-09	9.68E-10	1.37E-08	5.05E-09	3.52E-09
1.47E-09	1.37E-09	1.14E-09	2.06E-09	9.07E-10	9.05E-10	1.33E-08	4.78E-09	3.74E-09
1.41E-09	1.23E-09	1.12E-09	1.96E-09	7.59E-10	9.87E-10	1.38E-08	5.50E-09	3.65E-09
1.36E-09	1.43E-09	1.25E-09	1.99E-09	8.81E-10	1.20E-09	1.36E-08	5.80E-09	3.58E-09
2.05E-09	1.31E-09	1.13E-09	1.69E-09	1.12E-09	1.15E-09	1.36E-08	5.02E-09	3.68E-09
1.17E-09	1.19E-09	9.80E-10	2.24E-09	1.22E-09	1.07E-09	1.36E-08	5.10E-09	3.50E-09
1.36E-09	1.04E-09	1.20E-09	1.71E-09	7.38E-10	1.14E-09	1.36E-08	5.10E-09	4.07E-09
1.56E-09	8.77E-10	1.08E-09	2.00E-09	9.02E-10	9.27E-10	1.34E-08	5.17E-09	3.59E-09
2.24E-09	1.63E-09	1.49E-09	1.67E-09	8.17E-10	9.29E-10	1.36E-08	5.57E-09	3.44E-09
1.50E-09	1.05E-09	1.21E-09	1.81E-09	7.44E-10	7.32E-10	1.35E-08	5.11E-09	3.88E-09
1.72E-09	1.29E-09	1.24E-09	1.98E-09	8.58E-10	1.09E-09	1.36E-08	4.96E-09	3.63E-09
1.13E-09	8.29E-10	8.51E-10	2.02E-09	9.01E-10	1.42E-09	1.35E-08	5.22E-09	3.78E-09
1.50E-09	1.36E-09	1.31E-09	1.92E-09	7.28E-10	1.07E-09	1.37E-08	5.14E-09	3.41E-09
1.48E-09	1.05E-09	8.10E-10	2.14E-09	9.24E-10	8.19E-10	1.35E-08	4.95E-09	3.66E-09
1.47E-09	9.04E-10	9.85E-10	1.85E-09	1.36E-09	1.47E-09	1.36E-08	5.45E-09	3.96E-09
1.39E-09	1.13E-09	9.69E-10	1.87E-09	9.66E-10	1.04E-09	1.38E-08	5.28E-09	3.44E-09
1.30E-09	9.99E-10	1.01E-09	1.70E-09	8.31E-10	1.07E-09	1.35E-08	5.22E-09	3.47E-09
1.68E-09	1.30E-09	1.13E-09	1.89E-09	1.16E-09	9.13E-10	1.37E-08	5.23E-09	4.00E-09
1.41E-09	1.07E-09	1.05E-09	1.97E-09	8.45E-10	9.12E-10	1.36E-08	5.50E-09	4.00E-09
1.28E-09	9.79E-10	9.81E-10	1.75E-09	8.57E-10	1.16E-09	1.35E-08	5.44E-09	4.03E-09
1.43E-09	1.21E-09	1.49E-09	1.97E-09	8.89E-10	9.98E-10	1.41E-08	5.52E-09	3.70E-09
1.44E-09	1.15E-09	1.30E-09	1.98E-09	1.45E-09	1.25E-09	1.36E-08	5.29E-09	4.02E-09
1.45E-09	9.71E-10	1.05E-09	1.97E-09	9.92E-10	1.05E-09	1.36E-08	5.36E-09	3.39E-09
1.42E-09	9.85E-10	1.01E-09	2.17E-09	1.01E-09	8.85E-10	1.38E-08	5.39E-09	3.57E-09
1.50E-09	1.17E-09	1.16E-09	1.92E-09	7.82E-10	8.57E-10	1.39E-08	5.37E-09	3.74E-09
1.21E-09	1.16E-09	1.19E-09	2.02E-09	9.94E-10	8.75E-10	1.36E-08	5.15E-09	3.74E-09
1.35E-09	1.03E-09	1.26E-09	2.06E-09	7.24E-10	1.16E-09	1.37E-08	5.03E-09	3.97E-09
1.27E-09	1.03E-09	1.18E-09	1.93E-09	1.03E-09	1.35E-09	1.34E-08	5.07E-09	3.94E-09
1.29E-09	1.03E-09	1.02E-09	1.88E-09	8.71E-10	1.05E-09	1.38E-08	5.32E-09	3.72E-09

1.19E-09	8.45E-10	1.03E-09	1.87E-09	1.09E-09	9.77E-10	1.34E-08	5.21E-09	3.69E-09
1.31E-09	9.58E-10	1.01E-09	2.09E-09	9.19E-10	1.11E-09	1.37E-08	5.39E-09	3.78E-09
1.45E-09	1.01E-09	1.26E-09	1.84E-09	9.87E-10	1.62E-09	1.40E-08	5.29E-09	3.62E-09
1.74E-09	1.11E-09	1.35E-09	2.07E-09	9.05E-10	1.03E-09	1.36E-08	5.16E-09	3.59E-09
1.25E-09	7.65E-10	8.96E-10	2.21E-09	1.10E-09	1.25E-09	1.35E-08	4.94E-09	3.80E-09
1.54E-09	1.03E-09	9.98E-10	1.99E-09	9.29E-10	7.46E-10	1.33E-08	5.00E-09	3.69E-09
1.48E-09	1.19E-09	9.13E-10	2.01E-09	9.04E-10	1.16E-09	1.39E-08	5.28E-09	3.65E-09
1.41E-09	1.23E-09	1.17E-09	2.30E-09	7.49E-10	7.78E-10	1.39E-08	5.35E-09	4.00E-09
1.68E-09	1.14E-09	1.16E-09	2.06E-09	1.15E-09	9.28E-10	1.37E-08	5.39E-09	3.78E-09
1.67E-09	1.11E-09	1.21E-09	2.18E-09	9.95E-10	9.86E-10	1.36E-08	5.48E-09	3.49E-09
1.26E-09	1.26E-09	1.23E-09	2.16E-09	1.06E-09	9.07E-10	1.37E-08	5.01E-09	3.60E-09
1.47E-09	8.71E-10	9.35E-10	1.72E-09	9.94E-10	1.21E-09	1.37E-08	5.19E-09	3.45E-09
1.30E-09	8.98E-10	9.38E-10	2.07E-09	7.98E-10	1.01E-09	1.37E-08	5.33E-09	3.89E-09
1.34E-09	1.08E-09	1.12E-09	1.80E-09	9.39E-10	1.32E-09	1.35E-08	5.06E-09	3.59E-09
1.71E-09	9.71E-10	8.67E-10	2.06E-09	1.25E-09	1.04E-09	1.37E-08	4.93E-09	3.59E-09
1.34E-09	8.51E-10	7.86E-10	2.10E-09	9.19E-10	1.13E-09	1.36E-08	5.29E-09	4.16E-09
1.64E-09	1.20E-09	1.43E-09	1.96E-09	8.93E-10	8.93E-10	1.36E-08	5.00E-09	3.54E-09
1.25E-09	9.28E-10	9.23E-10	1.79E-09	7.37E-10	9.29E-10	1.35E-08	5.17E-09	3.82E-09
1.19E-09	1.08E-09	8.91E-10	1.81E-09	7.82E-10	9.75E-10	1.40E-08	5.31E-09	3.59E-09
1.31E-09	1.13E-09	1.11E-09	2.18E-09	1.12E-09	9.23E-10	1.37E-08	5.27E-09	3.65E-09
1.39E-09	1.13E-09	1.10E-09	1.95E-09	1.03E-09	1.06E-09	1.36E-08	5.10E-09	3.56E-09
1.17E-09	9.27E-10	1.15E-09	2.32E-09	1.03E-09	1.16E-09	1.35E-08	5.01E-09	3.87E-09
1.45E-09	1.03E-09	1.16E-09	1.99E-09	7.94E-10	1.06E-09	1.35E-08	4.98E-09	3.99E-09
1.58E-09	1.03E-09	1.11E-09	2.25E-09	8.14E-10	8.81E-10	1.37E-08	5.17E-09	3.69E-09
1.65E-09	1.08E-09	1.27E-09	2.59E-09	9.85E-10	1.04E-09	1.32E-08	4.92E-09	4.15E-09
1.18E-09	9.52E-10	1.08E-09	1.96E-09	1.00E-09	1.10E-09	1.37E-08	5.05E-09	3.44E-09
1.27E-09	1.08E-09	9.79E-10	2.14E-09	9.91E-10	8.13E-10	1.35E-08	5.03E-09	3.69E-09
1.53E-09	1.30E-09	1.29E-09	1.91E-09	9.28E-10	1.26E-09	1.35E-08	5.01E-09	3.73E-09
1.49E-09	1.07E-09	1.02E-09	2.49E-09	1.67E-09	1.10E-09	1.38E-08	5.15E-09	3.38E-09
1.18E-09	1.04E-09	7.02E-10	2.30E-09	7.91E-10	1.06E-09	1.37E-08	4.95E-09	3.60E-09
1.48E-09	1.27E-09	1.10E-09	2.09E-09	1.04E-09	1.25E-09	1.36E-08	5.13E-09	3.64E-09
1.29E-09	1.57E-09	1.11E-09	2.09E-09	1.01E-09	8.26E-10	1.36E-08	5.10E-09	3.54E-09
1.66E-09	1.24E-09	9.97E-10	2.07E-09	7.99E-10	1.19E-09	1.37E-08	5.19E-09	3.71E-09
1.39E-09	1.04E-09	1.04E-09	2.02E-09	9.90E-10	8.96E-10	1.37E-08	5.10E-09	3.58E-09
1.48E-09	1.04E-09	1.01E-09	1.84E-09	9.96E-10	1.06E-09	1.34E-08	5.19E-09	3.59E-09
1.50E-09	1.40E-09	1.15E-09	1.74E-09	7.89E-10	9.56E-10	1.35E-08	5.00E-09	3.68E-09
1.78E-09	1.25E-09	1.29E-09	1.96E-09	9.00E-10	7.34E-10	1.40E-08	5.30E-09	3.81E-09
1.67E-09	1.22E-09	1.52E-09	1.59E-09	9.21E-10	1.30E-09	1.36E-08	5.27E-09	4.00E-09
1.33E-09	8.89E-10	9.84E-10	2.07E-09	8.12E-10	8.79E-10	1.36E-08	5.38E-09	3.63E-09
1.16E-09	1.06E-09	8.41E-10	1.83E-09	9.08E-10	9.65E-10	1.42E-08	5.76E-09	3.73E-09
1.32E-09	8.94E-10	9.12E-10	2.06E-09	1.03E-09	8.84E-10	1.38E-08	4.93E-09	3.98E-09
1.25E-09	1.15E-09	1.05E-09	2.29E-09	1.07E-09	9.83E-10	1.37E-08	4.95E-09	3.89E-09
1.21E-09	1.42E-09	1.11E-09	1.95E-09	1.02E-09	9.55E-10	1.36E-08	5.59E-09	3.74E-09
1.34E-09	1.45E-09	9.60E-10	2.13E-09	7.41E-10	1.08E-09	1.36E-08	5.20E-09	3.86E-09
1.19E-09	1.43E-09	1.30E-09	1.84E-09	8.36E-10	1.42E-09	1.38E-08	5.30E-09	3.95E-09
1.49E-09	1.12E-09	1.10E-09	2.11E-09	8.49E-10	1.04E-09	1.37E-08	5.05E-09	3.63E-09
1.34E-09	1.08E-09	1.16E-09	2.30E-09	1.25E-09	1.45E-09	1.33E-08	5.04E-09	3.81E-09
1.64E-09	1.04E-09	1.24E-09	1.85E-09	8.16E-10	9.24E-10	1.40E-08	5.28E-09	3.58E-09
1.69E-09	1.15E-09	1.43E-09	2.27E-09	1.16E-09	1.26E-09	1.36E-08	5.08E-09	3.71E-09
1.76E-09	1.15E-09	1.33E-09	2.31E-09	1.17E-09	1.54E-09	1.36E-08	4.99E-09	4.01E-09

1.57E-09	1.27E-09	1.14E-09	1.68E-09	9.89E-10	1.10E-09	1.38E-08	5.12E-09	3.89E-09
1.45E-09	7.59E-10	9.99E-10	1.83E-09	9.86E-10	1.12E-09	1.37E-08	5.06E-09	3.85E-09
1.27E-09	1.30E-09	1.30E-09	1.80E-09	8.69E-10	1.00E-09	1.37E-08	5.20E-09	3.22E-09
1.46E-09	9.31E-10	1.15E-09	2.36E-09	1.37E-09	1.04E-09	1.35E-08	5.30E-09	3.77E-09
1.56E-09	1.29E-09	1.20E-09	2.18E-09	1.06E-09	9.87E-10	1.36E-08	5.20E-09	3.61E-09
1.33E-09	8.58E-10	1.10E-09	2.04E-09	1.06E-09	1.40E-09	1.36E-08	5.22E-09	3.71E-09
1.42E-09	9.57E-10	1.04E-09	2.14E-09	9.41E-10	1.06E-09	1.36E-08	5.04E-09	3.71E-09
1.42E-09	9.69E-10	8.86E-10	1.94E-09	8.91E-10	1.32E-09	1.34E-08	5.11E-09	3.86E-09
1.26E-09	8.22E-10	1.05E-09	2.01E-09	8.63E-10	9.62E-10	1.36E-08	5.22E-09	3.90E-09
1.50E-09	1.27E-09	1.11E-09	2.40E-09	1.21E-09	1.26E-09	1.35E-08	5.05E-09	4.02E-09
1.90E-09	1.29E-09	1.36E-09	2.40E-09	1.22E-09	9.03E-10	1.34E-08	5.32E-09	3.75E-09
1.30E-09	9.59E-10	1.10E-09	2.10E-09	1.19E-09	1.29E-09	1.35E-08	4.87E-09	4.08E-09
1.24E-09	1.26E-09	8.94E-10	1.81E-09	8.51E-10	1.06E-09	1.36E-08	4.92E-09	3.54E-09
1.57E-09	1.38E-09	1.15E-09	1.86E-09	9.37E-10	8.58E-10	1.34E-08	5.18E-09	3.51E-09
1.20E-09	8.52E-10	9.11E-10	2.06E-09	8.78E-10	1.07E-09	1.35E-08	5.09E-09	3.71E-09
1.19E-09	9.78E-10	1.04E-09	2.41E-09	9.41E-10	9.42E-10	1.37E-08	5.05E-09	3.75E-09
1.08E-09	9.42E-10	1.06E-09	2.31E-09	1.11E-09	1.41E-09	1.37E-08	5.38E-09	3.74E-09
1.33E-09	9.20E-10	1.02E-09	2.18E-09	1.09E-09	8.90E-10	1.36E-08	4.93E-09	3.56E-09
1.29E-09	9.68E-10	8.79E-10	1.79E-09	8.33E-10	1.48E-09	1.36E-08	5.26E-09	3.82E-09
1.10E-09	9.85E-10	8.16E-10	2.10E-09	1.16E-09	1.01E-09	1.37E-08	5.29E-09	3.51E-09
1.35E-09	1.14E-09	1.38E-09	2.05E-09	1.16E-09	1.24E-09	1.35E-08	5.16E-09	3.97E-09
1.78E-09	1.20E-09	1.11E-09	1.98E-09	9.29E-10	9.72E-10	1.33E-08	4.73E-09	3.80E-09
1.19E-09	1.19E-09	1.08E-09	1.98E-09	8.72E-10	9.81E-10	1.36E-08	5.10E-09	3.75E-09
1.50E-09	8.47E-10	1.05E-09	1.88E-09	8.74E-10	1.01E-09	1.36E-08	5.27E-09	3.82E-09
1.43E-09	1.04E-09	1.51E-09	1.97E-09	8.25E-10	8.03E-10	1.38E-08	5.14E-09	3.49E-09
1.23E-09	1.04E-09	8.26E-10	1.93E-09	9.89E-10	1.06E-09	1.36E-08	5.17E-09	3.57E-09
1.40E-09	1.04E-09	9.58E-10	2.00E-09	1.07E-09	1.03E-09	1.36E-08	5.15E-09	3.52E-09
1.54E-09	1.40E-09	1.58E-09	2.01E-09	9.27E-10	8.82E-10	1.38E-08	5.22E-09	3.45E-09
1.13E-09	9.04E-10	8.16E-10	2.06E-09	8.47E-10	1.03E-09	1.35E-08	5.15E-09	3.88E-09
1.76E-09	1.40E-09	1.12E-09	2.26E-09	1.20E-09	1.17E-09	1.33E-08	5.19E-09	3.79E-09
1.09E-09	9.74E-10	9.81E-10	2.03E-09	9.05E-10	1.02E-09	1.32E-08	5.04E-09	4.19E-09
1.48E-09	1.10E-09	1.28E-09	2.32E-09	1.12E-09	9.44E-10	1.36E-08	5.29E-09	3.73E-09
1.73E-09	1.25E-09	1.29E-09	2.02E-09	9.86E-10	9.61E-10	1.38E-08	5.30E-09	3.88E-09
1.52E-09	1.04E-09	1.30E-09	2.11E-09	1.02E-09	1.08E-09	1.37E-08	5.40E-09	3.68E-09
1.28E-09	9.85E-10	1.05E-09	2.11E-09	9.68E-10	1.25E-09	1.35E-08	5.34E-09	3.47E-09
1.33E-09	1.07E-09	1.33E-09	2.04E-09	9.61E-10	1.28E-09	1.38E-08	5.23E-09	3.64E-09
1.17E-09	1.14E-09	1.02E-09	2.15E-09	1.03E-09	1.31E-09	1.36E-08	4.98E-09	3.50E-09
1.53E-09	1.14E-09	1.09E-09	1.89E-09	6.63E-10	1.18E-09	1.34E-08	5.08E-09	3.71E-09
1.46E-09	1.03E-09	9.99E-10	2.10E-09	1.09E-09	1.00E-09	1.35E-08	5.20E-09	3.68E-09
1.36E-09	8.68E-10	1.24E-09	1.96E-09	9.38E-10	1.12E-09	1.34E-08	4.80E-09	3.83E-09
1.52E-09	1.11E-09	1.19E-09	2.06E-09	8.12E-10	1.34E-09	1.37E-08	5.44E-09	3.56E-09
1.16E-09	1.16E-09	1.22E-09	2.14E-09	1.28E-09	1.05E-09	1.40E-08	5.33E-09	3.34E-09
1.65E-09	1.31E-09	1.37E-09	1.89E-09	7.25E-10	1.09E-09	1.35E-08	5.31E-09	3.62E-09
1.45E-09	1.43E-09	1.15E-09	1.98E-09	7.74E-10	9.46E-10	1.37E-08	5.15E-09	3.46E-09
1.56E-09	1.24E-09	1.13E-09	1.94E-09	9.22E-10	1.05E-09	1.38E-08	4.99E-09	3.97E-09
2.01E-09	1.48E-09	1.31E-09	1.91E-09	8.37E-10	9.36E-10	1.36E-08	5.02E-09	3.70E-09
1.99E-09	1.49E-09	1.29E-09	1.86E-09	6.89E-10	7.86E-10	1.36E-08	5.20E-09	3.72E-09
1.50E-09	1.49E-09	1.07E-09	2.41E-09	1.09E-09	1.50E-09	1.38E-08	5.27E-09	3.68E-09
1.44E-09	8.59E-10	1.14E-09	2.06E-09	7.98E-10	9.66E-10	1.41E-08	5.57E-09	3.43E-09
1.40E-09	1.33E-09	1.09E-09	1.95E-09	1.15E-09	1.19E-09	1.36E-08	5.27E-09	3.38E-09

1.35E-09	1.30E-09	1.04E-09	1.90E-09	9.57E-10	1.17E-09	1.36E-08	5.08E-09	3.64E-09
1.18E-09	1.17E-09	9.59E-10	2.05E-09	9.84E-10	1.21E-09	1.35E-08	5.21E-09	3.83E-09
1.30E-09	9.62E-10	1.34E-09	2.06E-09	9.29E-10	1.12E-09	1.36E-08	5.03E-09	3.78E-09
1.50E-09	1.23E-09	1.18E-09	2.04E-09	7.76E-10	9.45E-10	1.33E-08	4.88E-09	3.49E-09
1.22E-09	8.09E-10	1.02E-09	2.40E-09	1.28E-09	8.25E-10	1.35E-08	4.94E-09	3.51E-09
1.36E-09	9.94E-10	1.08E-09	2.19E-09	9.19E-10	1.04E-09	1.36E-08	5.24E-09	3.45E-09
1.52E-09	1.41E-09	1.13E-09	2.23E-09	1.21E-09	1.28E-09	1.35E-08	5.01E-09	3.59E-09
1.38E-09	1.14E-09	9.47E-10	2.09E-09	8.32E-10	1.04E-09	1.36E-08	5.11E-09	3.61E-09
1.34E-09	1.24E-09	9.01E-10	2.14E-09	1.06E-09	9.11E-10	1.35E-08	5.13E-09	3.76E-09
1.39E-09	9.34E-10	1.25E-09	1.93E-09	9.42E-10	1.14E-09	1.36E-08	5.24E-09	3.67E-09
1.30E-09	1.10E-09	8.36E-10	2.08E-09	7.84E-10	8.70E-10	1.37E-08	5.11E-09	3.68E-09
1.09E-09	1.31E-09	7.76E-10	2.10E-09	8.58E-10	9.06E-10	1.37E-08	4.91E-09	4.01E-09
1.63E-09	1.32E-09	1.28E-09	1.66E-09	1.17E-09	8.39E-10	1.35E-08	5.01E-09	3.74E-09
1.37E-09	1.04E-09	1.11E-09	1.86E-09	1.06E-09	1.09E-09	1.38E-08	5.22E-09	3.42E-09
1.27E-09	1.00E-09	1.14E-09	2.11E-09	1.32E-09	1.17E-09	1.36E-08	5.17E-09	3.97E-09
1.44E-09	1.13E-09	1.14E-09	2.10E-09	1.35E-09	1.16E-09	1.34E-08	5.20E-09	3.98E-09
1.36E-09	1.07E-09	1.02E-09	2.17E-09	8.69E-10	1.02E-09	1.34E-08	5.16E-09	3.49E-09
1.36E-09	1.04E-09	1.05E-09	1.93E-09	1.24E-09	1.24E-09	1.33E-08	5.16E-09	3.57E-09
1.33E-09	1.28E-09	1.10E-09	2.02E-09	1.24E-09	1.23E-09	1.38E-08	5.27E-09	3.54E-09
1.29E-09	8.75E-10	1.08E-09	1.94E-09	6.85E-10	1.15E-09	1.36E-08	5.07E-09	3.58E-09
1.43E-09	1.10E-09	9.38E-10	2.09E-09	8.42E-10	8.51E-10	1.34E-08	5.01E-09	4.03E-09
1.31E-09	1.04E-09	1.40E-09	1.98E-09	8.02E-10	9.95E-10	1.36E-08	4.98E-09	3.64E-09
1.31E-09	8.52E-10	9.24E-10	2.06E-09	1.25E-09	1.13E-09	1.38E-08	5.35E-09	3.84E-09
1.59E-09	9.89E-10	1.08E-09	1.69E-09	1.07E-09	1.03E-09	1.33E-08	5.09E-09	3.60E-09
1.42E-09	1.29E-09	1.20E-09	2.09E-09	1.01E-09	7.78E-10	1.39E-08	5.46E-09	3.72E-09
1.84E-09	1.73E-09	1.30E-09	2.14E-09	1.11E-09	9.04E-10	1.35E-08	5.16E-09	3.56E-09
1.61E-09	1.20E-09	1.41E-09	1.80E-09	7.44E-10	1.30E-09	1.37E-08	5.25E-09	3.92E-09
1.37E-09	1.06E-09	9.89E-10	1.95E-09	1.17E-09	1.11E-09	1.35E-08	5.18E-09	3.54E-09
1.43E-09	9.63E-10	1.17E-09	2.08E-09	1.02E-09	1.05E-09	1.34E-08	5.31E-09	3.73E-09
1.22E-09	9.87E-10	9.04E-10	2.02E-09	6.59E-10	8.04E-10	1.38E-08	5.23E-09	3.86E-09
1.33E-09	1.39E-09	1.25E-09	2.00E-09	1.03E-09	9.52E-10	1.37E-08	5.11E-09	3.65E-09
1.15E-09	8.39E-10	7.75E-10	1.76E-09	8.94E-10	9.46E-10	1.37E-08	4.82E-09	3.68E-09
1.15E-09	9.28E-10	8.94E-10	1.96E-09	7.67E-10	1.21E-09	1.38E-08	4.98E-09	3.69E-09
1.32E-09	1.08E-09	9.70E-10	2.09E-09	7.21E-10	9.15E-10	1.36E-08	5.10E-09	3.54E-09
1.34E-09	1.14E-09	9.73E-10	1.91E-09	9.81E-10	1.21E-09	1.38E-08	5.33E-09	3.93E-09
1.66E-09	1.35E-09	1.29E-09	2.10E-09	1.09E-09	1.40E-09	1.36E-08	5.44E-09	3.77E-09
1.47E-09	8.57E-10	1.04E-09	1.88E-09	1.06E-09	1.31E-09	1.37E-08	5.58E-09	3.85E-09
1.47E-09	1.02E-09	1.23E-09	2.05E-09	7.94E-10	9.89E-10	1.35E-08	5.20E-09	3.82E-09
1.11E-09	8.71E-10	7.08E-10	2.12E-09	9.32E-10	1.06E-09	1.35E-08	5.35E-09	3.72E-09
1.54E-09	9.77E-10	1.32E-09	2.10E-09	1.04E-09	1.12E-09	1.40E-08	5.38E-09	3.84E-09
1.52E-09	1.13E-09	1.32E-09	2.41E-09	1.20E-09	1.31E-09	1.38E-08	5.23E-09	3.72E-09
1.29E-09	1.06E-09	1.10E-09	2.03E-09	1.12E-09	1.31E-09	1.42E-08	5.27E-09	3.50E-09
1.57E-09	1.26E-09	1.32E-09	1.81E-09	7.83E-10	8.33E-10	1.37E-08	5.29E-09	3.51E-09
1.09E-09	9.05E-10	9.59E-10	1.96E-09	1.09E-09	1.24E-09	1.34E-08	4.92E-09	3.73E-09
1.19E-09	9.92E-10	8.81E-10	1.99E-09	1.08E-09	1.18E-09	1.37E-08	5.00E-09	3.60E-09
1.44E-09	9.43E-10	7.94E-10	1.71E-09	9.30E-10	8.64E-10	1.35E-08	4.99E-09	3.72E-09
1.60E-09	1.10E-09	9.74E-10	2.10E-09	1.27E-09	1.04E-09	1.37E-08	5.05E-09	3.78E-09
1.34E-09	1.29E-09	1.28E-09	1.99E-09	7.76E-10	1.50E-09	1.38E-08	5.43E-09	3.89E-09
1.40E-09	9.17E-10	8.48E-10	1.67E-09	8.81E-10	1.17E-09	1.37E-08	5.13E-09	3.81E-09
1.75E-09	1.27E-09	1.22E-09	2.26E-09	9.13E-10	8.20E-10	1.35E-08	5.34E-09	3.82E-09

1.24E-09	8.83E-10	1.12E-09	2.03E-09	8.22E-10	1.22E-09	1.37E-08	5.18E-09	3.73E-09
1.23E-09	1.13E-09	1.22E-09	2.19E-09	9.40E-10	9.44E-10	1.36E-08	5.42E-09	3.66E-09
1.34E-09	1.14E-09	9.75E-10	1.85E-09	6.95E-10	7.92E-10	1.39E-08	5.35E-09	3.60E-09
1.52E-09	1.20E-09	9.68E-10	1.77E-09	8.47E-10	1.15E-09	1.36E-08	5.26E-09	3.80E-09
1.37E-09	1.02E-09	9.42E-10	1.84E-09	8.68E-10	1.30E-09	1.37E-08	5.25E-09	3.96E-09
1.53E-09	1.08E-09	1.24E-09	2.02E-09	1.30E-09	1.36E-09	1.35E-08	4.83E-09	4.18E-09
1.53E-09	1.08E-09	1.08E-09	2.13E-09	1.34E-09	1.17E-09	1.37E-08	5.37E-09	3.93E-09
1.45E-09	1.17E-09	1.07E-09	1.93E-09	8.38E-10	1.19E-09	1.38E-08	5.16E-09	3.55E-09
1.68E-09	1.16E-09	1.07E-09	2.14E-09	7.86E-10	7.97E-10	1.35E-08	4.94E-09	3.90E-09
1.75E-09	1.15E-09	1.14E-09	1.77E-09	7.93E-10	1.05E-09	1.36E-08	5.41E-09	3.68E-09
1.55E-09	1.10E-09	1.38E-09	1.79E-09	6.95E-10	1.03E-09	1.38E-08	5.36E-09	3.82E-09
1.60E-09	1.11E-09	1.10E-09	1.94E-09	8.36E-10	7.76E-10	1.37E-08	5.29E-09	3.75E-09
1.40E-09	1.09E-09	1.18E-09	2.21E-09	7.32E-10	9.65E-10	1.39E-08	5.27E-09	3.49E-09
1.42E-09	1.04E-09	1.10E-09	2.35E-09	8.81E-10	1.24E-09	1.37E-08	5.08E-09	3.66E-09
1.41E-09	1.04E-09	1.11E-09	2.20E-09	1.13E-09	1.04E-09	1.40E-08	5.31E-09	3.36E-09
1.46E-09	1.09E-09	1.16E-09	1.97E-09	9.10E-10	9.55E-10	1.37E-08	5.26E-09	3.46E-09
1.62E-09	1.39E-09	1.33E-09	2.04E-09	1.44E-09	1.32E-09	1.39E-08	5.30E-09	3.69E-09
1.78E-09	1.20E-09	1.19E-09	1.96E-09	1.05E-09	1.12E-09	1.36E-08	5.21E-09	3.59E-09
1.74E-09	1.27E-09	1.32E-09	2.05E-09	9.75E-10	1.20E-09	1.35E-08	5.28E-09	3.77E-09
1.61E-09	1.15E-09	1.05E-09	2.23E-09	1.19E-09	1.10E-09	1.35E-08	5.14E-09	3.70E-09
1.30E-09	9.99E-10	1.20E-09	2.09E-09	8.48E-10	1.49E-09	1.36E-08	5.19E-09	3.63E-09
1.65E-09	1.48E-09	1.57E-09	2.21E-09	9.92E-10	1.21E-09	1.37E-08	5.57E-09	3.75E-09
1.55E-09	9.84E-10	1.47E-09	2.04E-09	1.05E-09	1.12E-09	1.36E-08	5.05E-09	3.47E-09
1.55E-09	1.29E-09	1.37E-09	1.83E-09	1.12E-09	8.84E-10	1.34E-08	4.92E-09	3.77E-09
1.62E-09	1.12E-09	1.15E-09	2.21E-09	9.11E-10	9.05E-10	1.36E-08	4.97E-09	3.57E-09
1.63E-09	1.14E-09	1.07E-09	2.06E-09	1.18E-09	1.11E-09	1.37E-08	5.28E-09	3.69E-09
1.45E-09	1.21E-09	1.18E-09	2.04E-09	8.58E-10	1.00E-09	1.37E-08	5.48E-09	3.82E-09
1.52E-09	1.22E-09	1.32E-09	2.04E-09	9.57E-10	1.39E-09	1.38E-08	5.22E-09	3.98E-09
1.15E-09	1.10E-09	1.04E-09	2.06E-09	1.14E-09	1.17E-09	1.36E-08	5.10E-09	3.73E-09
1.38E-09	1.16E-09	1.15E-09	1.93E-09	1.20E-09	1.16E-09	1.40E-08	5.39E-09	3.65E-09
1.43E-09	1.36E-09	1.04E-09	2.18E-09	1.15E-09	9.01E-10	1.35E-08	5.18E-09	3.43E-09
1.51E-09	1.23E-09	9.98E-10	1.96E-09	6.71E-10	9.46E-10	1.34E-08	5.25E-09	3.91E-09
1.54E-09	1.19E-09	1.12E-09	2.20E-09	1.28E-09	9.81E-10	1.40E-08	5.31E-09	3.59E-09
1.55E-09	1.09E-09	9.42E-10	2.10E-09	1.45E-09	9.84E-10	1.38E-08	5.18E-09	3.59E-09
1.80E-09	1.31E-09	1.17E-09	2.10E-09	8.17E-10	1.06E-09	1.35E-08	5.26E-09	3.54E-09
1.37E-09	1.15E-09	1.04E-09	1.79E-09	8.48E-10	1.05E-09	1.35E-08	5.19E-09	3.30E-09
1.48E-09	1.19E-09	1.37E-09	2.26E-09	1.08E-09	1.12E-09	1.35E-08	5.01E-09	3.90E-09
1.41E-09	1.03E-09	9.76E-10	1.78E-09	8.68E-10	1.09E-09	1.36E-08	5.01E-09	3.59E-09
1.64E-09	1.45E-09	1.51E-09	1.63E-09	1.04E-09	1.13E-09	1.37E-08	5.24E-09	3.79E-09
1.47E-09	1.28E-09	1.23E-09	2.04E-09	1.17E-09	1.41E-09	1.38E-08	5.14E-09	3.82E-09
1.39E-09	9.89E-10	1.12E-09	2.32E-09	1.21E-09	9.19E-10	1.34E-08	4.99E-09	4.05E-09
1.19E-09	1.19E-09	9.09E-10	1.98E-09	6.61E-10	1.26E-09	1.34E-08	5.04E-09	4.23E-09
1.47E-09	1.19E-09	1.28E-09	2.04E-09	7.97E-10	1.25E-09	1.33E-08	4.86E-09	3.61E-09
1.90E-09	1.72E-09	1.44E-09	2.06E-09	7.99E-10	9.20E-10	1.38E-08	5.30E-09	3.66E-09
1.51E-09	9.34E-10	8.80E-10	2.01E-09	1.51E-09	1.13E-09	1.36E-08	5.31E-09	3.80E-09
1.78E-09	1.22E-09	1.12E-09	1.92E-09	1.01E-09	1.20E-09	1.37E-08	5.09E-09	4.16E-09
1.41E-09	1.27E-09	1.26E-09	2.33E-09	1.02E-09	1.14E-09	1.39E-08	5.44E-09	3.28E-09
1.78E-09	1.31E-09	9.92E-10	2.32E-09	1.04E-09	9.44E-10	1.37E-08	5.05E-09	3.70E-09
1.76E-09	1.12E-09	1.29E-09	1.94E-09	9.72E-10	1.35E-09	1.37E-08	5.29E-09	3.74E-09
2.02E-09	1.34E-09	1.17E-09	2.16E-09	1.04E-09	1.27E-09	1.39E-08	5.18E-09	3.46E-09

1.03E-09	1.04E-09	9.08E-10	1.63E-09	8.46E-10	1.06E-09	1.37E-08	5.22E-09	3.72E-09
1.65E-09	1.25E-09	1.02E-09	2.32E-09	9.47E-10	1.18E-09	1.38E-08	4.86E-09	3.74E-09
1.33E-09	1.09E-09	8.67E-10	2.17E-09	1.04E-09	1.15E-09	1.37E-08	5.21E-09	3.71E-09
1.75E-09	1.45E-09	1.31E-09	2.20E-09	7.64E-10	1.38E-09	1.37E-08	4.97E-09	3.60E-09
1.44E-09	1.10E-09	1.32E-09	1.97E-09	7.51E-10	1.09E-09	1.36E-08	4.93E-09	3.69E-09
1.44E-09	1.28E-09	1.27E-09	2.58E-09	1.19E-09	1.17E-09	1.36E-08	5.13E-09	3.90E-09
1.61E-09	1.14E-09	9.40E-10	1.76E-09	9.55E-10	1.10E-09	1.35E-08	4.90E-09	4.10E-09
1.72E-09	1.53E-09	1.24E-09	1.93E-09	1.08E-09	9.55E-10	1.36E-08	4.95E-09	3.83E-09
1.53E-09	1.30E-09	1.23E-09	1.84E-09	6.60E-10	1.02E-09	1.42E-08	5.73E-09	3.57E-09
1.41E-09	1.15E-09	1.01E-09	2.12E-09	1.02E-09	1.29E-09	1.42E-08	5.74E-09	3.42E-09
1.31E-09	1.06E-09	9.61E-10	2.15E-09	1.08E-09	1.11E-09	1.37E-08	5.48E-09	3.42E-09
1.55E-09	9.74E-10	1.10E-09	1.99E-09	1.04E-09	1.15E-09	1.35E-08	5.16E-09	4.12E-09
1.60E-09	1.23E-09	1.34E-09	2.01E-09	6.81E-10	1.18E-09	1.35E-08	4.91E-09	3.93E-09
1.39E-09	1.22E-09	1.17E-09	2.16E-09	1.06E-09	9.73E-10	1.33E-08	5.17E-09	4.00E-09
1.38E-09	1.20E-09	1.01E-09	1.86E-09	8.10E-10	6.59E-10	1.35E-08	4.98E-09	3.84E-09
1.83E-09	1.60E-09	1.19E-09	1.90E-09	8.56E-10	1.12E-09	1.33E-08	5.00E-09	3.64E-09
1.20E-09	9.80E-10	1.06E-09	1.82E-09	6.71E-10	1.50E-09	1.34E-08	5.07E-09	3.61E-09
1.33E-09	1.13E-09	9.58E-10	2.19E-09	9.77E-10	1.16E-09	1.35E-08	4.82E-09	3.75E-09
1.47E-09	1.50E-09	1.21E-09	2.09E-09	8.02E-10	1.42E-09	1.40E-08	5.32E-09	3.54E-09
1.39E-09	1.28E-09	1.02E-09	2.12E-09	1.23E-09	1.08E-09	1.39E-08	5.17E-09	3.65E-09
1.54E-09	1.19E-09	1.04E-09	2.19E-09	1.02E-09	9.75E-10	1.36E-08	4.99E-09	3.42E-09
1.58E-09	1.41E-09	1.16E-09	2.34E-09	1.46E-09	1.11E-09	1.33E-08	4.78E-09	3.46E-09
1.54E-09	1.54E-09	1.08E-09	2.08E-09	8.45E-10	1.11E-09	1.40E-08	5.33E-09	3.65E-09
1.33E-09	1.02E-09	1.14E-09	2.31E-09	7.74E-10	9.69E-10	1.37E-08	5.20E-09	3.80E-09
1.25E-09	1.16E-09	9.57E-10	1.84E-09	7.95E-10	8.23E-10	1.35E-08	5.05E-09	3.63E-09
1.72E-09	1.14E-09	1.41E-09	2.22E-09	9.63E-10	1.19E-09	1.35E-08	5.04E-09	3.83E-09
1.39E-09	1.22E-09	1.17E-09	2.11E-09	9.22E-10	6.95E-10	1.37E-08	5.00E-09	3.66E-09
1.02E-09	1.15E-09	9.74E-10	2.17E-09	9.56E-10	1.21E-09	1.34E-08	5.38E-09	3.58E-09
1.43E-09	1.27E-09	1.33E-09	2.07E-09	1.02E-09	9.72E-10	1.37E-08	5.22E-09	3.58E-09
1.32E-09	1.23E-09	1.00E-09	2.05E-09	1.26E-09	6.75E-10	1.35E-08	5.12E-09	3.99E-09
1.45E-09	9.89E-10	1.48E-09	2.00E-09	6.82E-10	1.05E-09	1.39E-08	5.14E-09	3.58E-09
1.52E-09	8.66E-10	1.16E-09	1.80E-09	8.97E-10	1.00E-09	1.35E-08	5.12E-09	3.56E-09
1.32E-09	9.93E-10	8.78E-10	2.36E-09	1.21E-09	1.07E-09	1.36E-08	5.20E-09	3.79E-09
1.40E-09	9.56E-10	9.39E-10	1.70E-09	8.50E-10	9.91E-10	1.37E-08	4.96E-09	3.77E-09
1.43E-09	9.33E-10	1.09E-09	2.00E-09	9.91E-10	1.69E-09	1.38E-08	5.30E-09	3.80E-09
1.32E-09	8.96E-10	9.07E-10	2.55E-09	1.00E-09	1.10E-09	1.36E-08	5.28E-09	3.80E-09
1.48E-09	1.17E-09	1.12E-09	1.96E-09	9.50E-10	1.20E-09	1.37E-08	5.28E-09	3.80E-09
1.61E-09	1.10E-09	1.33E-09	1.74E-09	7.44E-10	1.27E-09	1.33E-08	4.81E-09	3.64E-09
1.37E-09	1.03E-09	1.04E-09	1.94E-09	9.60E-10	8.40E-10	1.37E-08	5.15E-09	3.62E-09
1.22E-09	1.05E-09	8.06E-10	1.91E-09	8.82E-10	9.56E-10	1.34E-08	5.23E-09	3.62E-09
1.73E-09	1.32E-09	1.58E-09	2.34E-09	1.21E-09	1.12E-09	1.34E-08	5.01E-09	3.65E-09
1.38E-09	1.15E-09	1.06E-09	2.04E-09	8.86E-10	9.82E-10	1.38E-08	4.96E-09	3.82E-09
1.60E-09	1.18E-09	1.10E-09	1.84E-09	8.60E-10	8.82E-10	1.36E-08	5.36E-09	3.53E-09
1.27E-09	1.01E-09	9.80E-10	2.06E-09	7.00E-10	7.51E-10	1.33E-08	4.93E-09	3.58E-09
1.65E-09	1.24E-09	1.28E-09	2.40E-09	1.11E-09	1.10E-09	1.35E-08	5.29E-09	3.58E-09
1.39E-09	1.33E-09	9.66E-10	2.24E-09	1.28E-09	1.06E-09	1.35E-08	4.95E-09	4.11E-09
1.33E-09	1.38E-09	1.09E-09	2.24E-09	9.00E-10	1.14E-09	1.37E-08	5.13E-09	3.43E-09
1.34E-09	1.30E-09	1.06E-09	1.87E-09	8.01E-10	9.42E-10	1.40E-08	5.42E-09	3.42E-09
1.33E-09	9.98E-10	1.01E-09	2.10E-09	8.97E-10	9.21E-10	1.38E-08	5.28E-09	3.68E-09
1.32E-09	1.09E-09	1.14E-09	1.83E-09	6.17E-10	1.06E-09	1.36E-08	5.12E-09	3.69E-09

1.06E-09	1.03E-09	7.62E-10	1.82E-09	8.10E-10	1.05E-09	1.35E-08	5.12E-09	3.66E-09
1.31E-09	1.05E-09	1.07E-09	2.30E-09	1.42E-09	1.49E-09	1.35E-08	5.21E-09	3.54E-09
1.62E-09	1.05E-09	1.25E-09	2.05E-09	1.04E-09	9.66E-10	1.37E-08	5.28E-09	3.98E-09
1.78E-09	1.27E-09	1.41E-09	2.06E-09	9.06E-10	1.19E-09	1.39E-08	5.33E-09	3.80E-09
1.35E-09	1.08E-09	1.04E-09	1.67E-09	6.10E-10	9.08E-10	1.36E-08	5.20E-09	3.57E-09
1.27E-09	1.21E-09	9.94E-10	1.87E-09	9.89E-10	9.85E-10	1.37E-08	5.05E-09	3.71E-09
1.65E-09	1.46E-09	1.34E-09	2.08E-09	9.10E-10	8.72E-10	1.41E-08	5.45E-09	3.57E-09
1.66E-09	1.24E-09	1.11E-09	1.80E-09	9.79E-10	1.02E-09	1.37E-08	4.96E-09	3.55E-09
1.46E-09	1.16E-09	9.38E-10	1.63E-09	6.72E-10	1.12E-09	1.34E-08	4.99E-09	3.98E-09
1.34E-09	1.06E-09	9.27E-10	2.15E-09	9.16E-10	1.13E-09	1.39E-08	5.10E-09	3.59E-09
1.47E-09	1.10E-09	8.72E-10	2.07E-09	7.91E-10	1.09E-09	1.39E-08	5.07E-09	3.76E-09
1.41E-09	1.17E-09	1.17E-09	1.73E-09	8.72E-10	1.22E-09	1.35E-08	5.11E-09	3.61E-09
1.63E-09	9.60E-10	1.13E-09	1.66E-09	7.31E-10	1.20E-09	1.36E-08	4.93E-09	3.52E-09
1.62E-09	1.33E-09	1.04E-09	2.15E-09	7.32E-10	1.05E-09	1.35E-08	5.18E-09	3.65E-09
1.32E-09	8.86E-10	9.34E-10	2.04E-09	8.61E-10	1.30E-09	1.35E-08	5.38E-09	3.61E-09
1.32E-09	1.18E-09	8.73E-10	1.88E-09	7.82E-10	1.13E-09	1.36E-08	5.24E-09	3.87E-09
1.19E-09	1.02E-09	7.99E-10	2.10E-09	1.07E-09	1.21E-09	1.39E-08	5.32E-09	3.92E-09
1.53E-09	1.25E-09	9.03E-10	2.13E-09	1.43E-09	1.20E-09	1.37E-08	5.15E-09	3.55E-09
1.19E-09	9.97E-10	9.11E-10	1.96E-09	7.89E-10	1.10E-09	1.37E-08	5.54E-09	3.82E-09
1.42E-09	1.09E-09	1.14E-09	1.90E-09	1.05E-09	9.88E-10	1.36E-08	5.17E-09	4.14E-09
1.34E-09	9.15E-10	7.43E-10	2.26E-09	1.37E-09	1.31E-09	1.39E-08	5.52E-09	3.66E-09
1.18E-09	1.25E-09	8.80E-10	2.02E-09	9.92E-10	6.31E-10	1.34E-08	5.04E-09	3.61E-09
1.46E-09	1.26E-09	8.32E-10	1.89E-09	9.78E-10	8.31E-10	1.38E-08	5.33E-09	3.60E-09
1.55E-09	1.48E-09	1.39E-09	2.92E-09	1.29E-09	9.10E-10	1.34E-08	5.04E-09	3.61E-09
1.48E-09	9.75E-10	8.52E-10	2.08E-09	9.49E-10	9.57E-10	1.36E-08	5.19E-09	3.62E-09
1.67E-09	1.55E-09	1.18E-09	2.06E-09	1.05E-09	1.07E-09	1.36E-08	5.13E-09	3.56E-09
1.67E-09	1.10E-09	9.15E-10	2.23E-09	1.26E-09	1.21E-09	1.36E-08	4.99E-09	3.63E-09
1.40E-09	9.97E-10	1.01E-09	2.29E-09	9.52E-10	1.09E-09	1.35E-08	5.20E-09	3.76E-09
1.35E-09	1.10E-09	1.12E-09	2.02E-09	9.16E-10	9.85E-10	1.35E-08	5.03E-09	3.70E-09
1.48E-09	1.39E-09	1.05E-09	1.83E-09	8.88E-10	1.01E-09	1.36E-08	5.32E-09	3.92E-09
1.63E-09	1.31E-09	1.28E-09	1.74E-09	9.37E-10	1.01E-09	1.38E-08	5.50E-09	3.44E-09
1.40E-09	1.39E-09	1.06E-09	2.00E-09	9.06E-10	9.25E-10	1.39E-08	5.40E-09	3.58E-09
1.37E-09	9.59E-10	8.14E-10	2.13E-09	9.82E-10	9.60E-10	1.35E-08	5.18E-09	3.82E-09
1.61E-09	9.62E-10	1.25E-09	2.26E-09	1.08E-09	1.08E-09	1.35E-08	5.04E-09	3.51E-09
1.43E-09	1.16E-09	1.13E-09	1.96E-09	8.34E-10	1.17E-09	1.39E-08	5.22E-09	3.66E-09
1.44E-09	1.55E-09	9.05E-10	2.00E-09	1.21E-09	7.99E-10	1.34E-08	4.95E-09	3.94E-09
1.36E-09	1.40E-09	1.18E-09	2.04E-09	9.74E-10	1.03E-09	1.36E-08	4.84E-09	3.70E-09
1.58E-09	1.29E-09	1.23E-09	2.25E-09	1.11E-09	9.48E-10	1.36E-08	5.24E-09	3.89E-09
1.52E-09	8.64E-10	9.39E-10	2.26E-09	1.20E-09	1.31E-09	1.36E-08	5.20E-09	3.49E-09
1.43E-09	9.80E-10	8.83E-10	1.82E-09	1.13E-09	1.19E-09	1.37E-08	5.05E-09	3.37E-09
1.16E-09	1.12E-09	1.01E-09	1.96E-09	1.06E-09	1.31E-09	1.34E-08	5.02E-09	3.69E-09
1.60E-09	1.38E-09	1.49E-09	2.03E-09	1.28E-09	9.38E-10	1.37E-08	5.09E-09	3.65E-09
1.59E-09	1.25E-09	1.28E-09	2.13E-09	8.08E-10	1.07E-09	1.40E-08	5.12E-09	3.80E-09
1.60E-09	1.42E-09	1.24E-09	1.94E-09	9.50E-10	9.45E-10	1.40E-08	4.86E-09	3.83E-09
1.40E-09	1.25E-09	9.53E-10	2.03E-09	1.00E-09	9.07E-10	1.39E-08	5.33E-09	3.85E-09
1.58E-09	1.16E-09	9.82E-10	2.27E-09	1.13E-09	9.47E-10	1.34E-08	4.96E-09	3.57E-09
1.32E-09	1.17E-09	8.16E-10	2.04E-09	9.31E-10	8.09E-10	1.36E-08	5.18E-09	3.72E-09
1.95E-09	1.21E-09	1.05E-09	1.87E-09	8.24E-10	1.02E-09	1.35E-08	4.93E-09	3.49E-09
1.43E-09	8.72E-10	1.08E-09	2.01E-09	9.46E-10	1.20E-09	1.33E-08	5.25E-09	3.73E-09
1.24E-09	1.18E-09	1.01E-09	2.14E-09	1.14E-09	9.55E-10	1.35E-08	5.15E-09	3.73E-09

1.92E-09	1.30E-09	1.26E-09	2.36E-09	7.98E-10	1.25E-09	1.36E-08	4.95E-09	3.94E-09
1.46E-09	1.26E-09	9.76E-10	2.31E-09	9.95E-10	1.05E-09	1.35E-08	4.96E-09	3.40E-09
1.28E-09	1.14E-09	1.15E-09	2.01E-09	1.33E-09	1.10E-09	1.38E-08	5.11E-09	3.83E-09
1.37E-09	7.87E-10	1.01E-09	1.96E-09	1.07E-09	9.15E-10	1.38E-08	5.29E-09	3.39E-09
1.49E-09	1.13E-09	1.18E-09	2.31E-09	7.50E-10	1.24E-09	1.35E-08	5.05E-09	3.67E-09
1.37E-09	9.54E-10	9.34E-10	1.94E-09	1.14E-09	1.16E-09	1.37E-08	5.37E-09	3.63E-09
1.40E-09	1.10E-09	1.17E-09	1.94E-09	1.06E-09	8.52E-10	1.36E-08	5.07E-09	3.43E-09
1.43E-09	1.28E-09	1.25E-09	2.40E-09	1.11E-09	9.65E-10	1.37E-08	5.20E-09	3.85E-09
1.35E-09	1.21E-09	1.13E-09	2.08E-09	1.16E-09	9.51E-10	1.35E-08	5.28E-09	4.05E-09
1.62E-09	1.13E-09	1.13E-09	1.90E-09	1.44E-09	1.08E-09	1.38E-08	4.98E-09	3.70E-09
1.56E-09	1.20E-09	1.07E-09	2.03E-09	9.34E-10	9.32E-10	1.34E-08	5.19E-09	3.73E-09
1.24E-09	9.86E-10	1.39E-09	2.10E-09	9.74E-10	9.10E-10	1.39E-08	5.33E-09	3.56E-09
1.54E-09	1.17E-09	1.14E-09	2.04E-09	9.33E-10	1.10E-09	1.38E-08	5.10E-09	3.69E-09
1.64E-09	1.35E-09	1.39E-09	2.13E-09	9.55E-10	1.33E-09	1.36E-08	5.13E-09	3.61E-09
1.54E-09	1.37E-09	1.50E-09	2.47E-09	9.32E-10	1.43E-09	1.36E-08	5.11E-09	3.59E-09
1.97E-09	1.45E-09	1.45E-09	2.03E-09	1.16E-09	1.21E-09	1.37E-08	5.10E-09	3.69E-09
1.59E-09	1.08E-09	1.10E-09	1.90E-09	1.04E-09	1.12E-09	1.35E-08	5.18E-09	3.89E-09
1.46E-09	1.20E-09	1.06E-09	2.04E-09	9.08E-10	9.94E-10	1.38E-08	5.10E-09	3.75E-09
1.75E-09	1.21E-09	1.16E-09	2.05E-09	1.03E-09	1.07E-09	1.36E-08	5.24E-09	3.57E-09
1.42E-09	9.93E-10	1.20E-09	2.17E-09	8.48E-10	8.07E-10	1.36E-08	4.90E-09	3.72E-09
1.19E-09	9.26E-10	1.10E-09	2.00E-09	9.38E-10	9.68E-10	1.35E-08	5.04E-09	3.62E-09
1.31E-09	1.10E-09	1.07E-09	1.80E-09	1.09E-09	1.50E-09	1.35E-08	4.88E-09	3.71E-09
1.38E-09	9.28E-10	1.05E-09	1.87E-09	1.09E-09	1.14E-09	1.35E-08	5.11E-09	3.51E-09
1.58E-09	1.35E-09	9.40E-10	2.45E-09	1.09E-09	1.03E-09	1.36E-08	4.98E-09	3.50E-09
1.18E-09	1.09E-09	1.18E-09	1.90E-09	8.05E-10	1.04E-09	1.34E-08	4.98E-09	3.60E-09
1.76E-09	1.47E-09	1.53E-09	1.87E-09	9.75E-10	9.35E-10	1.38E-08	5.22E-09	3.53E-09
1.58E-09	1.22E-09	1.52E-09	1.96E-09	7.57E-10	1.03E-09	1.36E-08	5.25E-09	3.80E-09
1.55E-09	1.13E-09	1.54E-09	1.93E-09	9.06E-10	9.09E-10	1.37E-08	5.23E-09	3.62E-09
1.17E-09	8.54E-10	1.02E-09	2.12E-09	9.80E-10	9.45E-10	1.34E-08	5.11E-09	3.55E-09
1.31E-09	1.12E-09	1.16E-09	1.70E-09	8.51E-10	1.19E-09	1.35E-08	5.15E-09	3.81E-09
1.31E-09	1.05E-09	8.10E-10	2.45E-09	1.02E-09	1.60E-09	1.37E-08	5.00E-09	3.58E-09
1.42E-09	9.03E-10	1.03E-09	1.86E-09	9.23E-10	9.93E-10	1.33E-08	5.00E-09	3.63E-09
1.22E-09	1.11E-09	1.08E-09	2.04E-09	1.06E-09	1.52E-09	1.38E-08	5.35E-09	3.44E-09
1.35E-09	1.16E-09	9.63E-10	1.88E-09	8.55E-10	1.04E-09	1.36E-08	4.98E-09	3.72E-09
1.55E-09	1.03E-09	1.26E-09	2.08E-09	9.17E-10	1.09E-09	1.36E-08	5.05E-09	3.59E-09
1.21E-09	1.07E-09	1.04E-09	1.69E-09	7.99E-10	1.00E-09	1.37E-08	5.19E-09	3.83E-09
1.72E-09	1.18E-09	1.27E-09	1.84E-09	8.40E-10	1.18E-09	1.35E-08	5.10E-09	3.45E-09
1.37E-09	1.15E-09	1.10E-09	2.31E-09	8.79E-10	1.09E-09	1.35E-08	5.07E-09	3.58E-09
1.16E-09	9.75E-10	1.17E-09	1.87E-09	8.96E-10	1.01E-09	1.33E-08	5.04E-09	3.69E-09
1.58E-09	1.27E-09	1.23E-09	1.87E-09	1.03E-09	1.21E-09	1.33E-08	4.94E-09	3.58E-09
1.41E-09	9.62E-10	1.25E-09	1.89E-09	8.71E-10	9.95E-10	1.35E-08	5.02E-09	3.94E-09
1.68E-09	1.17E-09	1.30E-09	1.89E-09	7.86E-10	9.51E-10	1.40E-08	5.67E-09	3.66E-09
1.32E-09	1.14E-09	9.98E-10	1.80E-09	9.61E-10	9.17E-10	1.36E-08	5.09E-09	3.53E-09
1.30E-09	1.11E-09	1.14E-09	1.87E-09	1.38E-09	9.30E-10	1.37E-08	5.07E-09	3.61E-09
1.50E-09	1.17E-09	1.08E-09	1.96E-09	1.01E-09	9.72E-10	1.38E-08	5.32E-09	3.54E-09
1.54E-09	1.27E-09	1.28E-09	2.16E-09	1.02E-09	7.43E-10	1.38E-08	5.29E-09	3.75E-09
1.37E-09	9.47E-10	7.45E-10	2.22E-09	9.29E-10	1.09E-09	1.37E-08	5.26E-09	3.90E-09
1.86E-09	1.35E-09	1.02E-09	1.80E-09	7.44E-10	1.00E-09	1.39E-08	5.13E-09	3.67E-09
1.62E-09	1.09E-09	1.16E-09	1.87E-09	7.84E-10	1.10E-09	1.35E-08	5.05E-09	3.83E-09
1.68E-09	1.00E-09	1.06E-09	2.08E-09	6.99E-10	8.62E-10	1.35E-08	4.94E-09	3.50E-09

1.49E-09	1.15E-09	1.15E-09	1.96E-09	9.58E-10	9.31E-10	1.36E-08	5.14E-09	3.71E-09
1.44E-09	1.13E-09	1.12E-09	2.29E-09	9.04E-10	1.11E-09	1.36E-08	5.19E-09	3.80E-09
1.50E-09	9.89E-10	1.34E-09	2.11E-09	1.10E-09	1.13E-09	1.37E-08	5.05E-09	3.66E-09
1.64E-09	1.13E-09	1.10E-09	2.13E-09	7.51E-10	1.02E-09	1.35E-08	5.45E-09	3.34E-09
1.47E-09	1.03E-09	1.32E-09	2.01E-09	9.45E-10	1.05E-09	1.35E-08	5.06E-09	3.83E-09
1.22E-09	8.40E-10	1.14E-09	2.03E-09	1.12E-09	1.21E-09	1.36E-08	5.35E-09	3.96E-09
1.57E-09	9.88E-10	1.00E-09	2.07E-09	8.98E-10	1.26E-09	1.36E-08	5.05E-09	3.63E-09
1.60E-09	1.15E-09	1.07E-09	1.97E-09	1.09E-09	9.43E-10	1.37E-08	5.22E-09	4.07E-09
1.52E-09	1.13E-09	1.26E-09	2.13E-09	1.00E-09	1.00E-09	1.38E-08	5.01E-09	3.41E-09
1.62E-09	1.06E-09	1.18E-09	2.05E-09	9.01E-10	9.71E-10	1.38E-08	5.04E-09	3.65E-09
1.41E-09	1.04E-09	1.13E-09	2.25E-09	1.05E-09	9.75E-10	1.36E-08	4.95E-09	3.53E-09
1.76E-09	1.29E-09	1.41E-09	1.88E-09	1.01E-09	1.32E-09	1.36E-08	5.42E-09	3.94E-09
1.24E-09	8.20E-10	9.30E-10	1.90E-09	8.73E-10	1.16E-09	1.37E-08	5.23E-09	3.77E-09
1.47E-09	1.02E-09	1.07E-09	2.14E-09	1.12E-09	8.79E-10	1.38E-08	5.22E-09	3.78E-09
1.41E-09	9.44E-10	1.06E-09	1.96E-09	1.21E-09	1.18E-09	1.36E-08	5.12E-09	3.71E-09
1.54E-09	1.38E-09	1.13E-09	2.31E-09	1.03E-09	1.21E-09	1.35E-08	5.20E-09	3.65E-09
1.42E-09	1.06E-09	1.05E-09	2.33E-09	1.11E-09	1.33E-09	1.36E-08	5.20E-09	3.89E-09
1.47E-09	1.05E-09	1.09E-09	2.13E-09	1.00E-09	1.06E-09	1.35E-08	5.13E-09	4.04E-09
1.72E-09	1.15E-09	1.32E-09	1.83E-09	1.14E-09	6.69E-10	1.36E-08	5.13E-09	4.02E-09
2.00E-09	1.73E-09	1.83E-09	1.76E-09	1.04E-09	1.13E-09	1.38E-08	5.55E-09	3.68E-09
1.73E-09	1.16E-09	1.16E-09	2.18E-09	1.30E-09	1.06E-09	1.37E-08	5.12E-09	3.87E-09
1.53E-09	1.08E-09	1.07E-09	1.81E-09	9.23E-10	8.67E-10	1.35E-08	5.14E-09	3.51E-09
1.30E-09	1.03E-09	7.97E-10	1.71E-09	8.80E-10	1.30E-09	1.36E-08	5.39E-09	3.82E-09
1.48E-09	1.43E-09	1.09E-09	1.87E-09	8.72E-10	1.00E-09	1.36E-08	5.14E-09	3.82E-09
1.42E-09	1.03E-09	1.09E-09	1.81E-09	8.28E-10	1.23E-09	1.33E-08	4.79E-09	4.34E-09
1.50E-09	9.26E-10	1.13E-09	2.07E-09	9.88E-10	9.96E-10	1.37E-08	5.37E-09	3.74E-09
1.48E-09	9.82E-10	1.10E-09	2.21E-09	8.50E-10	9.81E-10	1.37E-08	5.29E-09	3.75E-09
1.50E-09	9.40E-10	8.72E-10	2.05E-09	9.54E-10	1.06E-09	1.38E-08	5.41E-09	3.55E-09
1.29E-09	1.05E-09	8.01E-10	1.83E-09	9.77E-10	9.75E-10	1.38E-08	5.25E-09	3.69E-09
1.77E-09	1.15E-09	1.46E-09	2.27E-09	6.64E-10	1.25E-09	1.37E-08	5.32E-09	3.92E-09
1.74E-09	1.36E-09	1.13E-09	1.98E-09	1.12E-09	1.02E-09	1.38E-08	5.00E-09	3.71E-09
1.24E-09	1.04E-09	8.72E-10	2.17E-09	1.03E-09	9.01E-10	1.35E-08	5.31E-09	3.93E-09
1.46E-09	9.69E-10	9.68E-10	2.02E-09	8.22E-10	9.46E-10	1.38E-08	5.13E-09	3.97E-09
1.68E-09	1.37E-09	1.27E-09	2.11E-09	1.27E-09	9.77E-10	1.36E-08	5.17E-09	3.71E-09
1.29E-09	8.11E-10	9.96E-10	2.29E-09	1.28E-09	1.13E-09	1.37E-08	5.25E-09	3.67E-09
1.64E-09	9.92E-10	1.15E-09	1.64E-09	7.95E-10	8.07E-10	1.34E-08	5.12E-09	3.91E-09
1.37E-09	8.88E-10	9.84E-10	2.14E-09	9.23E-10	9.12E-10	1.39E-08	5.15E-09	3.66E-09
1.59E-09	1.13E-09	1.17E-09	1.91E-09	7.71E-10	1.43E-09	1.35E-08	5.21E-09	3.44E-09
1.45E-09	1.28E-09	1.08E-09	1.92E-09	7.48E-10	1.17E-09	1.38E-08	5.49E-09	3.85E-09
1.61E-09	1.09E-09	1.04E-09	2.29E-09	1.17E-09	8.39E-10	1.37E-08	5.21E-09	3.58E-09
1.52E-09	8.74E-10	1.03E-09	1.91E-09	7.16E-10	1.03E-09	1.37E-08	4.74E-09	3.58E-09
1.40E-09	1.15E-09	1.05E-09	2.06E-09	1.04E-09	7.53E-10	1.35E-08	5.19E-09	3.48E-09
1.28E-09	1.06E-09	9.59E-10	1.85E-09	1.09E-09	1.11E-09	1.38E-08	5.13E-09	3.43E-09
1.28E-09	1.14E-09	1.20E-09	2.10E-09	1.05E-09	1.06E-09	1.34E-08	4.86E-09	3.74E-09
1.49E-09	1.07E-09	9.28E-10	2.16E-09	9.57E-10	8.91E-10	1.34E-08	5.18E-09	3.89E-09
1.35E-09	9.91E-10	1.15E-09	2.18E-09	1.01E-09	9.90E-10	1.35E-08	5.56E-09	3.59E-09
1.39E-09	1.18E-09	1.17E-09	1.71E-09	1.10E-09	1.14E-09	1.36E-08	5.73E-09	3.57E-09
1.24E-09	1.02E-09	1.59E-09	2.13E-09	1.20E-09	9.25E-10	1.35E-08	5.11E-09	3.97E-09
1.27E-09	9.30E-10	8.61E-10	2.13E-09	1.21E-09	1.45E-09	1.34E-08	4.95E-09	4.28E-09
1.24E-09	1.05E-09	8.77E-10	2.28E-09	1.22E-09	1.53E-09	1.34E-08	5.16E-09	3.99E-09

1.36E-09	1.28E-09	1.28E-09	2.33E-09	1.19E-09	1.48E-09	1.38E-08	5.34E-09	3.65E-09
1.55E-09	8.71E-10	1.09E-09	2.01E-09	1.12E-09	1.36E-09	1.38E-08	5.16E-09	3.80E-09
1.43E-09	1.19E-09	9.20E-10	2.22E-09	9.75E-10	1.16E-09	1.38E-08	5.11E-09	3.78E-09
1.44E-09	1.11E-09	1.02E-09	2.12E-09	1.07E-09	1.12E-09	1.38E-08	5.22E-09	3.96E-09
1.30E-09	1.07E-09	1.14E-09	2.13E-09	1.07E-09	1.43E-09	1.39E-08	5.24E-09	3.66E-09
1.68E-09	1.41E-09	1.18E-09	2.06E-09	1.24E-09	1.10E-09	1.35E-08	4.89E-09	3.87E-09
1.62E-09	1.21E-09	1.26E-09	1.64E-09	8.65E-10	8.61E-10	1.35E-08	4.92E-09	3.89E-09
1.34E-09	1.05E-09	1.27E-09	2.03E-09	9.13E-10	1.05E-09	1.37E-08	5.05E-09	3.96E-09
1.34E-09	1.03E-09	1.00E-09	1.88E-09	1.06E-09	1.01E-09	1.35E-08	5.04E-09	3.80E-09
1.41E-09	1.21E-09	1.14E-09	2.00E-09	7.90E-10	8.54E-10	1.37E-08	5.48E-09	3.78E-09
1.58E-09	1.14E-09	1.03E-09	2.21E-09	1.60E-09	9.26E-10	1.35E-08	5.18E-09	3.46E-09
1.34E-09	8.93E-10	1.06E-09	1.80E-09	9.25E-10	1.49E-09	1.34E-08	5.02E-09	3.66E-09
1.78E-09	1.51E-09	1.20E-09	1.90E-09	9.37E-10	1.08E-09	1.36E-08	5.04E-09	3.52E-09
9.65E-10	9.31E-10	9.98E-10	1.73E-09	8.02E-10	1.35E-09	1.32E-08	4.93E-09	3.77E-09
1.32E-09	9.94E-10	1.26E-09	1.80E-09	1.09E-09	9.47E-10	1.35E-08	5.03E-09	3.74E-09
1.38E-09	1.22E-09	1.13E-09	2.33E-09	1.32E-09	9.96E-10	1.36E-08	5.09E-09	3.50E-09
1.52E-09	1.20E-09	1.10E-09	2.08E-09	8.32E-10	1.36E-09	1.37E-08	4.92E-09	3.45E-09
1.19E-09	7.68E-10	1.03E-09	1.95E-09	1.05E-09	1.04E-09	1.36E-08	5.30E-09	3.65E-09
1.63E-09	1.37E-09	1.24E-09	2.03E-09	9.57E-10	1.20E-09	1.37E-08	5.11E-09	3.71E-09
1.77E-09	1.08E-09	1.21E-09	2.03E-09	7.79E-10	9.15E-10	1.37E-08	5.27E-09	3.72E-09
1.47E-09	1.23E-09	1.10E-09	1.74E-09	9.17E-10	1.11E-09	1.36E-08	5.21E-09	3.69E-09
1.13E-09	9.23E-10	7.88E-10	2.06E-09	9.36E-10	9.49E-10	1.33E-08	5.10E-09	3.86E-09
1.25E-09	9.27E-10	9.11E-10	2.02E-09	1.11E-09	1.21E-09	1.36E-08	5.08E-09	3.65E-09
1.37E-09	9.22E-10	1.13E-09	1.94E-09	1.41E-09	1.10E-09	1.35E-08	5.15E-09	3.84E-09
1.07E-09	1.06E-09	8.64E-10	2.28E-09	1.07E-09	1.35E-09	1.37E-08	5.16E-09	3.57E-09
1.26E-09	8.51E-10	9.65E-10	1.99E-09	1.01E-09	1.06E-09	1.41E-08	5.22E-09	3.55E-09
1.57E-09	1.10E-09	1.32E-09	1.96E-09	1.01E-09	1.05E-09	1.36E-08	5.38E-09	3.66E-09
1.39E-09	1.21E-09	1.14E-09	1.85E-09	1.03E-09	1.19E-09	1.34E-08	5.11E-09	3.66E-09
1.50E-09	8.63E-10	1.32E-09	1.79E-09	7.05E-10	1.17E-09	1.38E-08	5.15E-09	3.45E-09
1.30E-09	9.13E-10	1.36E-09	1.86E-09	1.09E-09	8.85E-10	1.35E-08	5.17E-09	3.58E-09
1.70E-09	1.31E-09	1.63E-09	1.91E-09	9.73E-10	1.21E-09	1.35E-08	5.05E-09	3.52E-09
1.53E-09	1.45E-09	1.14E-09	2.13E-09	8.78E-10	9.81E-10	1.38E-08	5.88E-09	4.02E-09
1.57E-09	1.25E-09	1.28E-09	2.03E-09	8.88E-10	1.03E-09	1.38E-08	5.33E-09	3.57E-09
1.46E-09	1.11E-09	9.57E-10	2.05E-09	1.14E-09	1.05E-09	1.37E-08	5.15E-09	3.70E-09
1.57E-09	1.27E-09	1.22E-09	2.22E-09	1.00E-09	1.04E-09	1.35E-08	4.89E-09	3.52E-09
1.19E-09	1.07E-09	8.80E-10	2.24E-09	1.12E-09	1.07E-09	1.35E-08	5.17E-09	3.74E-09
1.59E-09	1.30E-09	1.25E-09	1.96E-09	1.09E-09	1.21E-09	1.36E-08	4.87E-09	3.83E-09
1.46E-09	1.36E-09	1.33E-09	1.88E-09	9.06E-10	8.80E-10	1.34E-08	4.90E-09	3.48E-09
1.58E-09	1.17E-09	1.37E-09	2.03E-09	9.43E-10	1.13E-09	1.38E-08	5.27E-09	3.79E-09
1.24E-09	1.09E-09	9.42E-10	1.98E-09	1.05E-09	1.22E-09	1.36E-08	5.07E-09	3.88E-09
1.64E-09	9.17E-10	8.87E-10	1.81E-09	1.19E-09	1.15E-09	1.38E-08	5.41E-09	3.83E-09
1.53E-09	1.12E-09	1.25E-09	1.71E-09	1.04E-09	1.11E-09	1.37E-08	5.09E-09	3.79E-09
1.27E-09	1.01E-09	8.35E-10	1.64E-09	6.73E-10	1.15E-09	1.38E-08	5.43E-09	3.63E-09
1.44E-09	1.14E-09	1.01E-09	1.86E-09	9.31E-10	1.15E-09	1.34E-08	4.76E-09	3.92E-09
1.16E-09	1.04E-09	9.50E-10	1.94E-09	8.65E-10	1.16E-09	1.36E-08	5.16E-09	3.72E-09
1.43E-09	1.10E-09	9.68E-10	1.80E-09	9.99E-10	8.19E-10	1.37E-08	5.06E-09	3.61E-09
1.48E-09	1.06E-09	1.22E-09	2.14E-09	9.02E-10	8.73E-10	1.37E-08	5.30E-09	3.67E-09
1.17E-09	1.13E-09	1.22E-09	1.95E-09	9.01E-10	9.62E-10	1.35E-08	5.16E-09	3.97E-09
1.21E-09	1.08E-09	9.55E-10	1.99E-09	1.10E-09	1.04E-09	1.39E-08	5.32E-09	3.64E-09
1.52E-09	1.20E-09	1.10E-09	1.79E-09	9.54E-10	8.50E-10	1.40E-08	5.06E-09	3.47E-09

1.39E-09	9.30E-10	8.35E-10	2.09E-09	1.15E-09	9.72E-10	1.37E-08	5.19E-09	3.60E-09
1.79E-09	1.16E-09	1.47E-09	1.79E-09	7.38E-10	1.18E-09	1.36E-08	5.20E-09	3.66E-09
1.37E-09	9.65E-10	1.44E-09	2.02E-09	1.14E-09	1.10E-09	1.34E-08	4.82E-09	3.91E-09
1.27E-09	9.93E-10	1.06E-09	2.15E-09	1.03E-09	1.10E-09	1.35E-08	4.83E-09	3.85E-09
1.32E-09	1.27E-09	1.14E-09	1.90E-09	1.16E-09	1.18E-09	1.40E-08	5.20E-09	3.50E-09
1.36E-09	9.03E-10	1.16E-09	1.98E-09	8.51E-10	6.59E-10	1.31E-08	4.75E-09	4.01E-09
1.29E-09	1.06E-09	9.90E-10	2.22E-09	9.43E-10	8.68E-10	1.39E-08	5.30E-09	3.72E-09
1.61E-09	1.09E-09	1.24E-09	1.70E-09	1.27E-09	1.19E-09	1.35E-08	5.27E-09	3.70E-09
1.47E-09	1.07E-09	9.67E-10	1.91E-09	1.08E-09	1.02E-09	1.37E-08	5.17E-09	3.65E-09
1.82E-09	1.10E-09	1.31E-09	2.43E-09	1.26E-09	1.03E-09	1.35E-08	5.15E-09	3.62E-09
1.61E-09	1.14E-09	1.37E-09	1.82E-09	9.84E-10	8.85E-10	1.37E-08	5.26E-09	3.62E-09
1.29E-09	9.87E-10	1.13E-09	1.93E-09	1.13E-09	1.04E-09	1.36E-08	5.19E-09	4.08E-09
1.49E-09	1.25E-09	9.51E-10	2.01E-09	7.23E-10	1.05E-09	1.36E-08	5.35E-09	3.49E-09
1.43E-09	1.05E-09	9.01E-10	1.88E-09	9.96E-10	1.05E-09	1.38E-08	5.19E-09	3.45E-09
1.60E-09	1.17E-09	1.11E-09	2.06E-09	9.84E-10	8.33E-10	1.39E-08	5.48E-09	3.68E-09
1.37E-09	1.13E-09	9.23E-10	2.08E-09	7.23E-10	9.16E-10	1.35E-08	5.20E-09	3.70E-09
1.36E-09	1.08E-09	9.55E-10	2.18E-09	9.96E-10	1.09E-09	1.33E-08	5.11E-09	3.66E-09
1.83E-09	9.26E-10	1.31E-09	1.94E-09	7.82E-10	9.56E-10	1.40E-08	5.43E-09	3.52E-09
1.57E-09	9.44E-10	9.25E-10	1.91E-09	9.76E-10	1.26E-09	1.38E-08	5.23E-09	4.16E-09
1.38E-09	1.13E-09	1.26E-09	2.00E-09	9.68E-10	1.40E-09	1.36E-08	5.12E-09	3.57E-09
1.20E-09	1.01E-09	1.25E-09	1.94E-09	8.42E-10	8.74E-10	1.39E-08	5.18E-09	4.01E-09
1.55E-09	1.36E-09	1.13E-09	2.42E-09	1.49E-09	1.01E-09	1.37E-08	5.06E-09	3.84E-09
1.39E-09	1.03E-09	1.24E-09	2.22E-09	1.16E-09	1.12E-09	1.39E-08	5.27E-09	3.73E-09
1.48E-09	8.91E-10	9.40E-10	2.19E-09	1.19E-09	1.24E-09	1.38E-08	5.28E-09	3.66E-09
1.71E-09	1.12E-09	1.27E-09	1.64E-09	7.44E-10	8.02E-10	1.38E-08	5.34E-09	3.34E-09
1.10E-09	1.05E-09	9.98E-10	2.24E-09	1.11E-09	1.31E-09	1.34E-08	4.95E-09	3.79E-09
1.43E-09	1.13E-09	1.19E-09	1.85E-09	7.99E-10	9.35E-10	1.37E-08	5.14E-09	3.63E-09
1.15E-09	1.06E-09	1.22E-09	2.39E-09	7.90E-10	1.29E-09	1.33E-08	4.86E-09	3.58E-09
1.79E-09	1.49E-09	1.51E-09	2.10E-09	8.46E-10	8.84E-10	1.33E-08	5.07E-09	3.46E-09
1.61E-09	1.37E-09	1.20E-09	2.21E-09	9.03E-10	7.67E-10	1.39E-08	5.12E-09	3.70E-09
1.34E-09	1.00E-09	1.02E-09	2.28E-09	1.11E-09	9.05E-10	1.36E-08	5.15E-09	4.02E-09
1.52E-09	1.40E-09	1.19E-09	1.75E-09	1.11E-09	1.11E-09	1.38E-08	5.33E-09	3.70E-09
1.18E-09	9.96E-10	1.26E-09	2.52E-09	1.06E-09	1.27E-09	1.35E-08	5.18E-09	3.81E-09
1.19E-09	1.27E-09	1.04E-09	2.17E-09	1.18E-09	1.06E-09	1.35E-08	4.91E-09	3.62E-09
1.13E-09	1.04E-09	9.91E-10	2.23E-09	1.18E-09	8.39E-10	1.42E-08	5.73E-09	3.93E-09
1.31E-09	9.71E-10	1.08E-09	2.01E-09	1.16E-09	1.26E-09	1.36E-08	5.22E-09	3.54E-09
1.09E-09	1.24E-09	9.88E-10	1.97E-09	9.07E-10	9.00E-10	1.36E-08	5.23E-09	3.70E-09
1.56E-09	1.21E-09	9.31E-10	2.03E-09	1.02E-09	1.01E-09	1.35E-08	5.13E-09	4.04E-09
1.50E-09	1.40E-09	1.17E-09	2.29E-09	1.36E-09	1.06E-09	1.35E-08	5.08E-09	3.73E-09
1.22E-09	1.14E-09	1.08E-09	2.47E-09	8.97E-10	1.18E-09	1.39E-08	5.19E-09	3.57E-09
1.17E-09	9.33E-10	8.73E-10	2.02E-09	7.80E-10	9.66E-10	1.34E-08	5.18E-09	3.83E-09
1.59E-09	1.12E-09	1.22E-09	2.24E-09	1.11E-09	9.77E-10	1.37E-08	5.16E-09	3.74E-09
1.32E-09	1.09E-09	9.96E-10	1.93E-09	1.16E-09	1.09E-09	1.34E-08	5.36E-09	3.92E-09
1.41E-09	9.07E-10	1.21E-09	1.81E-09	9.53E-10	1.35E-09	1.35E-08	5.05E-09	3.44E-09
1.53E-09	1.26E-09	1.07E-09	2.47E-09	9.74E-10	1.07E-09	1.34E-08	5.27E-09	3.68E-09
1.23E-09	1.05E-09	9.56E-10	1.72E-09	8.75E-10	1.27E-09	1.36E-08	5.40E-09	3.40E-09
1.45E-09	9.61E-10	1.13E-09	1.92E-09	8.65E-10	9.84E-10	1.36E-08	5.20E-09	3.50E-09
1.17E-09	1.16E-09	9.98E-10	2.14E-09	8.18E-10	1.03E-09	1.34E-08	5.22E-09	3.50E-09
1.49E-09	1.00E-09	9.64E-10	1.99E-09	1.03E-09	1.13E-09	1.35E-08	5.02E-09	3.65E-09
1.27E-09	9.44E-10	8.71E-10	2.00E-09	1.02E-09	1.20E-09	1.39E-08	5.25E-09	3.78E-09

1.32E-09	9.46E-10	7.71E-10	1.82E-09	9.31E-10	1.58E-09	1.38E-08	5.31E-09	3.63E-09
1.48E-09	1.21E-09	1.46E-09	2.06E-09	8.56E-10	9.47E-10	1.35E-08	4.84E-09	4.02E-09
1.86E-09	1.37E-09	1.32E-09	2.07E-09	8.50E-10	1.36E-09	1.35E-08	5.10E-09	3.66E-09
1.85E-09	1.35E-09	1.24E-09	1.61E-09	1.04E-09	1.07E-09	1.36E-08	5.17E-09	3.53E-09
1.59E-09	1.11E-09	1.09E-09	2.24E-09	1.05E-09	9.63E-10	1.34E-08	5.14E-09	3.71E-09
1.32E-09	1.03E-09	1.11E-09	2.11E-09	8.52E-10	9.69E-10	1.39E-08	5.11E-09	3.51E-09
1.53E-09	1.02E-09	1.31E-09	1.89E-09	7.31E-10	1.15E-09	1.37E-08	5.05E-09	3.85E-09
1.21E-09	1.02E-09	1.05E-09	1.92E-09	1.19E-09	1.25E-09	1.37E-08	5.38E-09	3.65E-09
1.40E-09	1.11E-09	1.19E-09	2.37E-09	1.47E-09	7.64E-10	1.38E-08	4.92E-09	3.63E-09
1.26E-09	1.01E-09	1.02E-09	1.92E-09	9.98E-10	8.95E-10	1.35E-08	5.00E-09	3.69E-09
1.42E-09	1.03E-09	8.63E-10	2.28E-09	9.60E-10	9.58E-10	1.35E-08	5.22E-09	3.50E-09
1.49E-09	8.19E-10	8.25E-10	2.06E-09	9.54E-10	1.23E-09	1.34E-08	4.83E-09	4.02E-09
1.26E-09	8.64E-10	1.07E-09	2.31E-09	9.14E-10	8.46E-10	1.36E-08	5.18E-09	3.73E-09
1.57E-09	1.30E-09	1.24E-09	2.30E-09	1.24E-09	1.03E-09	1.34E-08	5.08E-09	3.72E-09
1.61E-09	9.42E-10	1.10E-09	2.32E-09	9.42E-10	1.21E-09	1.38E-08	5.17E-09	3.87E-09
1.47E-09	1.26E-09	1.17E-09	2.28E-09	9.85E-10	1.23E-09	1.37E-08	5.15E-09	3.55E-09
1.35E-09	1.13E-09	1.21E-09	1.78E-09	8.74E-10	1.23E-09	1.34E-08	4.76E-09	3.71E-09
1.43E-09	1.23E-09	1.11E-09	1.82E-09	7.51E-10	1.16E-09	1.39E-08	5.31E-09	3.62E-09
1.32E-09	1.00E-09	1.24E-09	2.43E-09	8.42E-10	1.43E-09	1.33E-08	5.07E-09	3.58E-09
1.73E-09	1.33E-09	1.33E-09	1.87E-09	8.89E-10	6.79E-10	1.36E-08	5.12E-09	3.53E-09
1.51E-09	1.03E-09	1.26E-09	1.84E-09	1.05E-09	1.09E-09	1.39E-08	5.33E-09	3.59E-09
1.37E-09	8.88E-10	1.21E-09	1.80E-09	1.00E-09	1.28E-09	1.37E-08	5.49E-09	3.46E-09
1.37E-09	1.46E-09	1.18E-09	2.04E-09	1.22E-09	1.30E-09	1.36E-08	5.57E-09	3.87E-09
1.60E-09	1.24E-09	1.09E-09	2.21E-09	7.80E-10	8.48E-10	1.35E-08	5.21E-09	3.73E-09
1.76E-09	1.36E-09	1.50E-09	1.97E-09	1.12E-09	1.50E-09	1.36E-08	4.99E-09	3.71E-09
1.32E-09	1.20E-09	1.22E-09	2.08E-09	9.62E-10	1.25E-09	1.36E-08	5.10E-09	3.52E-09
1.63E-09	1.22E-09	1.15E-09	1.97E-09	7.27E-10	8.85E-10	1.34E-08	4.95E-09	3.63E-09
1.30E-09	1.09E-09	1.04E-09	1.94E-09	8.53E-10	1.04E-09	1.38E-08	5.41E-09	3.84E-09
1.37E-09	8.80E-10	9.40E-10	1.87E-09	7.84E-10	1.27E-09	1.36E-08	4.96E-09	3.52E-09
1.46E-09	1.17E-09	1.08E-09	1.60E-09	1.05E-09	1.05E-09	1.36E-08	4.89E-09	3.61E-09
1.10E-09	1.17E-09	8.04E-10	2.04E-09	7.78E-10	1.41E-09	1.35E-08	4.89E-09	3.62E-09
1.28E-09	1.04E-09	9.29E-10	2.31E-09	1.06E-09	1.50E-09	1.37E-08	5.11E-09	3.40E-09
1.41E-09	9.59E-10	1.01E-09	2.16E-09	9.97E-10	1.01E-09	1.35E-08	5.15E-09	3.68E-09
1.55E-09	9.84E-10	1.18E-09	1.93E-09	8.72E-10	8.97E-10	1.37E-08	5.07E-09	3.59E-09
1.42E-09	1.12E-09	1.05E-09	2.14E-09	9.31E-10	1.09E-09	1.39E-08	5.01E-09	3.68E-09
1.35E-09	9.90E-10	1.20E-09	2.20E-09	8.77E-10	1.31E-09	1.36E-08	5.38E-09	3.81E-09
1.65E-09	1.37E-09	1.39E-09	1.88E-09	1.01E-09	9.34E-10	1.35E-08	5.08E-09	3.93E-09
1.18E-09	1.16E-09	8.73E-10	2.06E-09	9.13E-10	1.00E-09	1.38E-08	5.03E-09	3.92E-09
1.49E-09	1.02E-09	1.09E-09	2.14E-09	1.16E-09	1.11E-09	1.34E-08	5.25E-09	3.65E-09
1.31E-09	9.12E-10	1.05E-09	2.04E-09	9.87E-10	1.01E-09	1.37E-08	5.21E-09	3.56E-09
1.63E-09	1.45E-09	1.36E-09	2.17E-09	6.97E-10	8.85E-10	1.37E-08	5.11E-09	3.97E-09
1.63E-09	1.14E-09	1.11E-09	2.27E-09	9.08E-10	1.02E-09	1.36E-08	4.89E-09	4.04E-09
1.39E-09	1.06E-09	1.10E-09	2.18E-09	1.04E-09	7.47E-10	1.35E-08	5.20E-09	3.32E-09
1.60E-09	1.40E-09	1.27E-09	1.95E-09	1.19E-09	1.53E-09	1.35E-08	5.11E-09	4.01E-09
1.41E-09	1.13E-09	1.02E-09	1.81E-09	7.82E-10	9.55E-10	1.34E-08	5.14E-09	3.60E-09
1.63E-09	1.22E-09	1.26E-09	1.97E-09	1.22E-09	1.23E-09	1.38E-08	5.11E-09	3.83E-09
1.47E-09	1.04E-09	9.56E-10	2.40E-09	1.20E-09	9.05E-10	1.35E-08	5.13E-09	3.76E-09
1.29E-09	1.06E-09	9.59E-10	2.41E-09	1.19E-09	1.00E-09	1.34E-08	4.87E-09	3.94E-09
1.75E-09	1.18E-09	1.12E-09	2.19E-09	1.00E-09	1.06E-09	1.38E-08	5.27E-09	3.80E-09
1.42E-09	1.02E-09	1.24E-09	1.97E-09	1.08E-09	1.07E-09	1.38E-08	5.09E-09	3.29E-09

1.01E-09	8.67E-10	9.87E-10	1.73E-09	8.98E-10	9.86E-10	1.37E-08	5.13E-09	3.54E-09
1.21E-09	8.26E-10	1.02E-09	2.29E-09	9.55E-10	1.04E-09	1.39E-08	5.37E-09	3.81E-09
1.14E-09	1.06E-09	8.85E-10	2.08E-09	8.58E-10	1.28E-09	1.37E-08	5.11E-09	3.70E-09
1.28E-09	1.12E-09	9.82E-10	1.81E-09	8.01E-10	1.41E-09	1.36E-08	5.06E-09	3.88E-09
1.35E-09	1.15E-09	1.28E-09	2.24E-09	1.05E-09	8.22E-10	1.35E-08	4.95E-09	3.87E-09
1.39E-09	7.53E-10	9.53E-10	2.11E-09	7.78E-10	1.05E-09	1.33E-08	5.16E-09	3.63E-09
1.60E-09	1.41E-09	1.31E-09	2.18E-09	1.14E-09	1.51E-09	1.35E-08	5.03E-09	3.71E-09
1.60E-09	9.88E-10	1.29E-09	2.15E-09	8.91E-10	8.70E-10	1.35E-08	5.19E-09	3.63E-09
1.35E-09	8.17E-10	1.05E-09	1.87E-09	7.49E-10	8.50E-10	1.37E-08	4.97E-09	3.56E-09
1.32E-09	1.11E-09	1.13E-09	2.15E-09	1.25E-09	1.42E-09	1.36E-08	5.02E-09	3.71E-09
1.28E-09	8.63E-10	9.87E-10	1.94E-09	8.66E-10	9.70E-10	1.37E-08	5.28E-09	3.64E-09
1.46E-09	1.03E-09	1.19E-09	2.49E-09	1.39E-09	1.09E-09	1.35E-08	4.99E-09	3.55E-09
1.63E-09	1.09E-09	1.19E-09	1.93E-09	7.93E-10	1.01E-09	1.40E-08	4.78E-09	3.80E-09
1.32E-09	9.55E-10	1.21E-09	1.83E-09	9.12E-10	8.09E-10	1.38E-08	5.32E-09	3.61E-09
1.49E-09	1.02E-09	1.19E-09	1.92E-09	6.91E-10	7.94E-10	1.39E-08	5.25E-09	3.64E-09
1.92E-09	1.14E-09	1.40E-09	1.95E-09	8.82E-10	1.20E-09	1.37E-08	5.20E-09	3.48E-09
1.65E-09	1.28E-09	1.08E-09	1.80E-09	8.55E-10	1.09E-09	1.34E-08	5.05E-09	3.63E-09
1.24E-09	7.58E-10	1.07E-09	1.74E-09	6.65E-10	9.02E-10	1.37E-08	5.26E-09	4.02E-09
1.78E-09	1.37E-09	1.17E-09	1.86E-09	8.49E-10	7.80E-10	1.38E-08	4.97E-09	3.41E-09
1.38E-09	1.12E-09	1.22E-09	1.80E-09	1.23E-09	1.24E-09	1.33E-08	5.00E-09	3.36E-09
1.25E-09	1.05E-09	1.14E-09	2.23E-09	8.56E-10	1.09E-09	1.37E-08	4.93E-09	3.56E-09
1.50E-09	8.95E-10	9.78E-10	1.96E-09	9.71E-10	1.20E-09	1.37E-08	5.55E-09	3.61E-09
1.40E-09	8.93E-10	9.25E-10	1.97E-09	9.59E-10	1.27E-09	1.37E-08	5.08E-09	3.53E-09
1.24E-09	8.84E-10	1.03E-09	1.93E-09	6.80E-10	9.30E-10	1.37E-08	5.42E-09	3.48E-09
1.39E-09	1.17E-09	1.10E-09	2.28E-09	1.13E-09	1.09E-09	1.36E-08	4.98E-09	3.84E-09
1.80E-09	1.22E-09	1.26E-09	1.82E-09	7.64E-10	8.33E-10	1.38E-08	5.09E-09	3.70E-09
1.30E-09	9.32E-10	9.05E-10	2.22E-09	8.58E-10	8.37E-10	1.37E-08	4.98E-09	3.83E-09
1.29E-09	1.30E-09	1.06E-09	1.88E-09	1.00E-09	8.22E-10	1.39E-08	5.28E-09	3.73E-09
1.41E-09	1.22E-09	1.12E-09	2.13E-09	1.13E-09	1.32E-09	1.35E-08	5.05E-09	3.66E-09
1.20E-09	9.87E-10	9.94E-10	2.21E-09	9.97E-10	1.24E-09	1.36E-08	4.93E-09	3.73E-09
1.67E-09	9.65E-10	1.05E-09	2.18E-09	9.98E-10	1.11E-09	1.37E-08	5.31E-09	3.67E-09
1.60E-09	1.20E-09	1.25E-09	2.06E-09	1.16E-09	1.07E-09	1.35E-08	4.80E-09	3.93E-09
1.38E-09	1.02E-09	9.74E-10	2.28E-09	1.10E-09	9.42E-10	1.37E-08	4.90E-09	3.49E-09
1.64E-09	1.28E-09	1.40E-09	2.10E-09	1.12E-09	1.07E-09	1.38E-08	5.37E-09	3.59E-09
1.52E-09	9.85E-10	8.30E-10	1.97E-09	1.13E-09	1.23E-09	1.37E-08	5.23E-09	3.81E-09
1.87E-09	1.06E-09	1.23E-09	1.91E-09	1.18E-09	1.11E-09	1.35E-08	4.99E-09	3.66E-09
1.45E-09	1.18E-09	1.36E-09	2.24E-09	1.11E-09	8.88E-10	1.34E-08	4.99E-09	3.65E-09
2.01E-09	1.53E-09	1.45E-09	2.17E-09	8.88E-10	8.37E-10	1.35E-08	5.02E-09	3.65E-09
1.41E-09	1.22E-09	1.13E-09	2.05E-09	7.85E-10	1.33E-09	1.39E-08	5.18E-09	3.28E-09
1.58E-09	9.74E-10	1.12E-09	2.46E-09	8.71E-10	1.09E-09	1.33E-08	4.77E-09	3.45E-09
1.29E-09	9.39E-10	1.03E-09	1.86E-09	1.23E-09	1.20E-09	1.38E-08	5.29E-09	3.83E-09
1.46E-09	8.38E-10	9.07E-10	1.89E-09	1.29E-09	1.04E-09	1.38E-08	5.61E-09	4.17E-09
1.52E-09	1.36E-09	1.55E-09	1.90E-09	1.35E-09	1.01E-09	1.38E-08	4.94E-09	3.80E-09
1.47E-09	1.22E-09	9.33E-10	1.79E-09	8.37E-10	1.21E-09	1.36E-08	5.38E-09	3.65E-09
1.40E-09	1.28E-09	1.30E-09	2.05E-09	9.02E-10	1.04E-09	1.37E-08	5.10E-09	3.51E-09
1.28E-09	9.67E-10	1.06E-09	1.98E-09	9.04E-10	1.45E-09	1.36E-08	4.94E-09	3.84E-09
1.53E-09	1.04E-09	1.19E-09	2.22E-09	1.07E-09	1.19E-09	1.33E-08	4.92E-09	3.88E-09
1.79E-09	1.01E-09	1.06E-09	2.11E-09	1.14E-09	1.10E-09	1.42E-08	5.59E-09	3.58E-09
1.47E-09	1.13E-09	1.25E-09	2.08E-09	7.87E-10	1.11E-09	1.39E-08	5.23E-09	4.01E-09
1.56E-09	1.05E-09	1.30E-09	2.17E-09	9.85E-10	9.74E-10	1.36E-08	5.19E-09	3.41E-09

1.55E-09	1.18E-09	1.13E-09	2.04E-09	1.16E-09	8.84E-10	1.38E-08	5.25E-09	4.12E-09
1.13E-09	1.07E-09	8.68E-10	1.94E-09	1.07E-09	9.68E-10	1.37E-08	5.02E-09	3.78E-09
1.11E-09	9.73E-10	8.54E-10	1.84E-09	1.02E-09	1.18E-09	1.37E-08	5.04E-09	3.99E-09
1.43E-09	9.54E-10	1.03E-09	1.81E-09	1.26E-09	1.20E-09	1.33E-08	4.88E-09	3.82E-09
1.34E-09	1.07E-09	1.04E-09	1.97E-09	8.63E-10	7.88E-10	1.36E-08	5.26E-09	3.74E-09
1.28E-09	1.11E-09	1.14E-09	1.78E-09	9.06E-10	1.25E-09	1.37E-08	5.10E-09	3.83E-09
1.44E-09	1.08E-09	1.26E-09	1.94E-09	1.16E-09	1.14E-09	1.39E-08	5.03E-09	3.85E-09
1.38E-09	1.24E-09	1.24E-09	1.90E-09	8.57E-10	9.78E-10	1.39E-08	5.40E-09	3.58E-09
1.21E-09	9.99E-10	8.95E-10	1.92E-09	1.29E-09	1.25E-09	1.35E-08	5.28E-09	3.57E-09
1.55E-09	9.23E-10	1.01E-09	2.00E-09	8.04E-10	1.19E-09	1.36E-08	5.14E-09	3.66E-09
1.51E-09	1.16E-09	1.02E-09	1.88E-09	9.56E-10	1.09E-09	1.36E-08	5.26E-09	3.41E-09
1.64E-09	1.03E-09	1.27E-09	2.07E-09	1.05E-09	9.23E-10	1.35E-08	5.28E-09	3.55E-09
1.16E-09	8.46E-10	8.29E-10	2.02E-09	1.15E-09	8.68E-10	1.35E-08	5.01E-09	3.79E-09
1.63E-09	1.21E-09	9.20E-10	2.27E-09	1.17E-09	1.48E-09	1.37E-08	5.26E-09	3.98E-09
1.62E-09	1.12E-09	9.56E-10	2.19E-09	1.00E-09	1.17E-09	1.37E-08	5.37E-09	3.74E-09
1.64E-09	1.23E-09	1.12E-09	2.25E-09	8.63E-10	1.13E-09	1.35E-08	5.19E-09	3.76E-09
1.57E-09	1.03E-09	1.05E-09	1.90E-09	9.06E-10	9.84E-10	1.37E-08	5.09E-09	3.66E-09
1.33E-09	1.00E-09	1.10E-09	1.86E-09	1.22E-09	1.13E-09	1.36E-08	5.11E-09	3.76E-09
1.46E-09	8.56E-10	9.67E-10	1.91E-09	1.09E-09	1.18E-09	1.36E-08	5.15E-09	3.75E-09
1.16E-09	1.39E-09	1.26E-09	2.13E-09	7.86E-10	9.66E-10	1.33E-08	5.10E-09	3.61E-09
1.17E-09	1.05E-09	7.47E-10	1.95E-09	8.51E-10	8.19E-10	1.36E-08	5.16E-09	4.02E-09
1.42E-09	1.18E-09	1.23E-09	1.98E-09	9.70E-10	8.79E-10	1.37E-08	5.23E-09	3.60E-09
1.59E-09	1.09E-09	9.54E-10	1.91E-09	7.57E-10	9.28E-10	1.36E-08	5.28E-09	3.64E-09
1.36E-09	8.01E-10	1.08E-09	1.68E-09	7.96E-10	1.01E-09	1.34E-08	5.09E-09	3.74E-09
1.43E-09	9.12E-10	1.02E-09	2.16E-09	1.02E-09	1.36E-09	1.35E-08	5.02E-09	3.62E-09
1.30E-09	9.24E-10	8.89E-10	2.04E-09	1.36E-09	1.12E-09	1.36E-08	4.84E-09	3.78E-09
1.55E-09	1.16E-09	1.01E-09	1.95E-09	9.16E-10	1.14E-09	1.37E-08	4.98E-09	3.76E-09
1.54E-09	1.27E-09	1.16E-09	2.03E-09	1.17E-09	1.07E-09	1.38E-08	5.48E-09	3.74E-09
1.45E-09	9.87E-10	1.05E-09	2.35E-09	8.46E-10	8.33E-10	1.41E-08	5.36E-09	3.46E-09
1.83E-09	1.25E-09	1.27E-09	2.11E-09	8.47E-10	8.04E-10	1.37E-08	5.37E-09	3.43E-09
1.35E-09	9.80E-10	1.00E-09	1.81E-09	9.33E-10	9.98E-10	1.33E-08	5.07E-09	3.78E-09
1.53E-09	1.38E-09	1.20E-09	1.73E-09	8.90E-10	9.26E-10	1.36E-08	5.20E-09	3.77E-09
1.56E-09	1.18E-09	1.08E-09	1.59E-09	8.72E-10	1.05E-09	1.34E-08	5.12E-09	3.73E-09
1.52E-09	1.15E-09	8.45E-10	1.97E-09	6.92E-10	9.93E-10	1.35E-08	5.12E-09	3.98E-09
1.81E-09	1.34E-09	1.35E-09	1.89E-09	7.21E-10	1.09E-09	1.37E-08	5.38E-09	3.83E-09
1.18E-09	1.02E-09	7.83E-10	1.91E-09	9.07E-10	1.14E-09	1.38E-08	5.12E-09	3.61E-09
1.75E-09	1.34E-09	8.89E-10	2.29E-09	9.36E-10	1.27E-09	1.36E-08	5.06E-09	3.60E-09
1.63E-09	1.42E-09	1.37E-09	1.83E-09	8.25E-10	9.01E-10	1.37E-08	5.07E-09	3.90E-09
1.37E-09	9.04E-10	8.72E-10	2.23E-09	9.34E-10	8.82E-10	1.37E-08	5.19E-09	3.93E-09
1.46E-09	1.05E-09	1.06E-09	1.98E-09	8.44E-10	1.25E-09	1.38E-08	5.39E-09	3.76E-09
1.19E-09	1.03E-09	9.15E-10	1.88E-09	8.79E-10	1.13E-09	1.39E-08	5.33E-09	3.95E-09
1.57E-09	1.20E-09	1.13E-09	2.35E-09	1.18E-09	1.08E-09	1.36E-08	5.41E-09	3.65E-09
1.10E-09	8.46E-10	1.13E-09	2.24E-09	9.36E-10	1.07E-09	1.40E-08	5.42E-09	3.59E-09
1.34E-09	1.04E-09	9.62E-10	1.67E-09	1.01E-09	1.06E-09	1.36E-08	5.12E-09	3.74E-09
1.34E-09	1.10E-09	1.16E-09	2.22E-09	9.81E-10	1.02E-09	1.39E-08	5.31E-09	3.69E-09
1.44E-09	9.77E-10	1.18E-09	2.17E-09	1.27E-09	1.01E-09	1.36E-08	5.05E-09	3.67E-09
1.47E-09	1.05E-09	1.33E-09	1.93E-09	9.14E-10	1.10E-09	1.37E-08	5.24E-09	3.80E-09
1.50E-09	1.12E-09	1.15E-09	1.85E-09	8.23E-10	1.22E-09	1.39E-08	5.22E-09	3.55E-09
1.32E-09	1.07E-09	1.03E-09	2.23E-09	1.04E-09	7.43E-10	1.39E-08	4.92E-09	3.52E-09
1.57E-09	1.28E-09	1.18E-09	1.91E-09	9.55E-10	1.09E-09	1.38E-08	5.19E-09	3.89E-09

1.68E-09	1.20E-09	1.19E-09	2.06E-09	9.52E-10	1.31E-09	1.37E-08	5.37E-09	3.92E-09
1.64E-09	1.18E-09	1.14E-09	2.09E-09	8.10E-10	1.13E-09	1.38E-08	5.26E-09	3.78E-09
1.19E-09	1.18E-09	1.08E-09	2.42E-09	1.01E-09	9.58E-10	1.35E-08	5.18E-09	3.56E-09
1.68E-09	1.08E-09	1.01E-09	2.16E-09	8.09E-10	9.47E-10	1.37E-08	5.45E-09	3.57E-09
1.61E-09	1.38E-09	1.33E-09	2.01E-09	7.73E-10	1.17E-09	1.36E-08	5.20E-09	3.76E-09
1.90E-09	1.27E-09	1.26E-09	1.94E-09	8.18E-10	9.59E-10	1.36E-08	5.05E-09	3.66E-09
1.79E-09	1.48E-09	1.27E-09	2.18E-09	1.13E-09	9.51E-10	1.40E-08	5.22E-09	3.97E-09
1.60E-09	1.00E-09	1.16E-09	2.17E-09	8.81E-10	1.04E-09	1.36E-08	4.86E-09	3.95E-09
1.36E-09	1.17E-09	1.13E-09	2.14E-09	9.99E-10	1.19E-09	1.39E-08	5.20E-09	3.62E-09
1.57E-09	1.33E-09	1.54E-09	1.80E-09	8.90E-10	9.36E-10	1.38E-08	5.18E-09	4.31E-09
1.34E-09	1.10E-09	1.16E-09	1.76E-09	9.07E-10	1.16E-09	1.34E-08	5.08E-09	3.98E-09
1.21E-09	7.63E-10	8.53E-10	1.88E-09	1.03E-09	1.17E-09	1.37E-08	5.30E-09	3.78E-09
1.25E-09	1.29E-09	9.56E-10	2.40E-09	1.19E-09	1.18E-09	1.37E-08	4.98E-09	3.85E-09
1.42E-09	1.03E-09	1.29E-09	1.85E-09	8.93E-10	1.09E-09	1.39E-08	4.96E-09	3.50E-09
1.65E-09	1.22E-09	1.16E-09	2.30E-09	1.13E-09	1.20E-09	1.34E-08	5.06E-09	3.61E-09
1.49E-09	1.11E-09	9.32E-10	2.20E-09	1.29E-09	1.27E-09	1.34E-08	4.94E-09	3.70E-09
1.76E-09	1.51E-09	1.28E-09	2.14E-09	8.11E-10	9.00E-10	1.38E-08	5.25E-09	3.58E-09
1.11E-09	8.05E-10	1.01E-09	1.93E-09	8.38E-10	9.99E-10	1.35E-08	5.34E-09	3.82E-09
1.50E-09	1.14E-09	1.48E-09	1.55E-09	6.66E-10	1.05E-09	1.36E-08	5.33E-09	3.56E-09
1.72E-09	1.23E-09	1.18E-09	2.57E-09	1.31E-09	1.41E-09	1.37E-08	5.17E-09	3.45E-09
1.35E-09	1.47E-09	1.38E-09	1.93E-09	1.01E-09	1.44E-09	1.36E-08	5.25E-09	3.61E-09
1.38E-09	1.17E-09	1.26E-09	1.95E-09	9.39E-10	1.47E-09	1.35E-08	5.10E-09	3.73E-09
1.30E-09	9.40E-10	9.61E-10	1.68E-09	9.56E-10	1.07E-09	1.37E-08	5.07E-09	3.57E-09
1.11E-09	1.02E-09	1.02E-09	1.88E-09	1.02E-09	8.46E-10	1.37E-08	5.59E-09	3.81E-09
1.47E-09	1.51E-09	1.48E-09	1.86E-09	1.15E-09	8.77E-10	1.35E-08	5.02E-09	3.92E-09
1.77E-09	1.24E-09	1.12E-09	1.83E-09	9.48E-10	1.03E-09	1.36E-08	4.95E-09	3.81E-09
1.47E-09	1.21E-09	9.78E-10	2.01E-09	7.35E-10	1.22E-09	1.37E-08	5.29E-09	3.68E-09
1.47E-09	1.23E-09	1.12E-09	2.03E-09	6.48E-10	9.01E-10	1.37E-08	5.32E-09	4.25E-09
1.74E-09	1.20E-09	1.19E-09	2.01E-09	9.77E-10	8.52E-10	1.37E-08	5.24E-09	3.66E-09
1.15E-09	1.04E-09	1.15E-09	1.80E-09	8.15E-10	9.21E-10	1.38E-08	5.42E-09	3.36E-09
1.30E-09	1.02E-09	1.06E-09	1.90E-09	8.94E-10	1.25E-09	1.36E-08	5.30E-09	4.15E-09
1.52E-09	1.24E-09	1.09E-09	2.25E-09	1.05E-09	1.26E-09	1.38E-08	5.16E-09	3.73E-09
1.61E-09	1.23E-09	1.30E-09	1.79E-09	7.67E-10	8.92E-10	1.37E-08	5.35E-09	3.55E-09
1.61E-09	1.01E-09	9.86E-10	2.41E-09	1.58E-09	9.53E-10	1.37E-08	5.28E-09	3.67E-09
1.54E-09	1.10E-09	1.26E-09	2.41E-09	9.27E-10	9.01E-10	1.37E-08	5.29E-09	4.04E-09
1.44E-09	1.24E-09	1.50E-09	1.99E-09	1.02E-09	1.03E-09	1.36E-08	5.12E-09	4.25E-09
1.33E-09	8.42E-10	1.09E-09	1.83E-09	7.85E-10	1.15E-09	1.39E-08	5.12E-09	3.61E-09
1.48E-09	1.04E-09	9.83E-10	2.14E-09	7.45E-10	9.96E-10	1.37E-08	5.19E-09	3.48E-09
1.61E-09	1.35E-09	1.23E-09	1.95E-09	1.02E-09	1.15E-09	1.39E-08	5.29E-09	3.56E-09
1.63E-09	1.25E-09	1.13E-09	2.03E-09	1.06E-09	9.18E-10	1.39E-08	5.18E-09	3.78E-09
1.58E-09	1.32E-09	1.09E-09	2.04E-09	1.07E-09	1.25E-09	1.36E-08	5.12E-09	3.72E-09
1.24E-09	9.93E-10	8.64E-10	1.89E-09	8.82E-10	1.19E-09	1.36E-08	5.08E-09	3.79E-09
1.60E-09	7.93E-10	1.03E-09	2.06E-09	1.15E-09	1.08E-09	1.36E-08	5.03E-09	3.73E-09
1.14E-09	9.30E-10	9.25E-10	2.17E-09	7.38E-10	9.13E-10	1.37E-08	5.54E-09	3.42E-09
1.32E-09	1.24E-09	1.09E-09	1.96E-09	1.02E-09	9.62E-10	1.40E-08	5.50E-09	3.77E-09
1.31E-09	8.35E-10	9.83E-10	2.09E-09	1.02E-09	9.26E-10	1.40E-08	5.90E-09	3.83E-09
1.37E-09	9.40E-10	8.08E-10	2.22E-09	7.62E-10	1.00E-09	1.37E-08	5.18E-09	3.66E-09
1.40E-09	9.72E-10	8.99E-10	1.98E-09	1.06E-09	1.13E-09	1.40E-08	5.52E-09	3.43E-09
1.49E-09	1.45E-09	1.16E-09	1.82E-09	9.34E-10	8.22E-10	1.38E-08	5.20E-09	3.88E-09
1.61E-09	1.47E-09	1.20E-09	2.17E-09	1.03E-09	1.05E-09	1.35E-08	5.00E-09	3.71E-09

1.60E-09	1.41E-09	1.11E-09	2.06E-09	8.11E-10	1.05E-09	1.37E-08	5.17E-09	3.38E-09
1.31E-09	9.85E-10	1.11E-09	2.10E-09	1.02E-09	8.75E-10	1.36E-08	5.03E-09	3.76E-09
1.39E-09	1.04E-09	1.44E-09	1.97E-09	8.64E-10	7.76E-10	1.36E-08	5.10E-09	3.39E-09
1.42E-09	1.25E-09	9.62E-10	2.03E-09	9.59E-10	8.80E-10	1.37E-08	5.13E-09	3.66E-09
1.74E-09	1.16E-09	1.20E-09	2.06E-09	8.20E-10	1.11E-09	1.36E-08	5.14E-09	3.49E-09
1.55E-09	9.81E-10	9.16E-10	2.21E-09	1.26E-09	1.21E-09	1.34E-08	5.17E-09	3.80E-09
1.49E-09	1.05E-09	1.22E-09	1.96E-09	8.56E-10	1.03E-09	1.34E-08	5.07E-09	3.46E-09
1.75E-09	1.17E-09	1.26E-09	1.74E-09	7.33E-10	8.15E-10	1.37E-08	5.08E-09	3.59E-09
1.34E-09	9.28E-10	9.18E-10	2.01E-09	8.63E-10	9.80E-10	1.36E-08	5.07E-09	3.56E-09
1.42E-09	9.15E-10	8.54E-10	1.96E-09	7.96E-10	9.97E-10	1.37E-08	5.39E-09	3.75E-09
1.35E-09	1.15E-09	1.01E-09	1.96E-09	1.27E-09	1.57E-09	1.36E-08	5.12E-09	3.67E-09
1.70E-09	1.42E-09	1.18E-09	2.15E-09	1.02E-09	8.22E-10	1.37E-08	5.15E-09	3.35E-09
1.43E-09	1.07E-09	9.35E-10	2.19E-09	1.19E-09	1.53E-09	1.38E-08	5.38E-09	3.80E-09
1.47E-09	1.07E-09	9.59E-10	2.02E-09	1.03E-09	7.99E-10	1.36E-08	5.18E-09	3.78E-09
1.10E-09	1.12E-09	9.49E-10	2.06E-09	9.68E-10	8.43E-10	1.37E-08	5.28E-09	3.93E-09
1.60E-09	1.09E-09	1.11E-09	1.97E-09	9.38E-10	1.07E-09	1.37E-08	5.33E-09	4.08E-09
1.40E-09	1.24E-09	1.08E-09	2.07E-09	9.96E-10	9.66E-10	1.35E-08	5.40E-09	3.81E-09
1.46E-09	1.10E-09	9.65E-10	1.86E-09	1.02E-09	1.07E-09	1.34E-08	5.27E-09	3.58E-09
1.28E-09	1.11E-09	1.03E-09	1.99E-09	9.23E-10	9.12E-10	1.39E-08	5.45E-09	3.72E-09
1.58E-09	1.52E-09	1.45E-09	2.31E-09	1.13E-09	1.08E-09	1.42E-08	5.75E-09	3.84E-09
1.49E-09	1.06E-09	1.05E-09	2.07E-09	7.71E-10	1.11E-09	1.35E-08	4.89E-09	3.69E-09
1.63E-09	1.09E-09	1.05E-09	2.05E-09	1.05E-09	1.21E-09	1.33E-08	4.93E-09	3.56E-09
1.34E-09	1.19E-09	9.53E-10	1.96E-09	7.39E-10	1.08E-09	1.37E-08	5.21E-09	3.87E-09
2.04E-09	1.18E-09	1.25E-09	1.99E-09	1.06E-09	1.59E-09	1.39E-08	5.22E-09	3.39E-09
1.44E-09	1.00E-09	1.11E-09	1.76E-09	7.12E-10	8.70E-10	1.35E-08	5.07E-09	3.85E-09
1.27E-09	1.30E-09	1.13E-09	2.40E-09	1.03E-09	1.01E-09	1.38E-08	5.22E-09	3.81E-09
1.35E-09	1.05E-09	1.15E-09	1.88E-09	8.14E-10	7.86E-10	1.33E-08	5.18E-09	3.61E-09
1.33E-09	1.39E-09	1.47E-09	1.97E-09	8.62E-10	1.21E-09	1.37E-08	5.22E-09	3.89E-09
1.35E-09	8.11E-10	1.07E-09	2.06E-09	9.89E-10	1.00E-09	1.36E-08	5.02E-09	3.91E-09
1.44E-09	1.06E-09	9.96E-10	2.37E-09	1.19E-09	1.03E-09	1.36E-08	5.05E-09	3.52E-09
1.51E-09	1.36E-09	1.42E-09	2.10E-09	1.14E-09	1.18E-09	1.37E-08	5.23E-09	3.61E-09
1.40E-09	1.27E-09	1.01E-09	1.83E-09	8.42E-10	1.04E-09	1.36E-08	5.13E-09	3.76E-09
1.68E-09	1.66E-09	1.32E-09	2.13E-09	1.01E-09	1.00E-09	1.36E-08	5.09E-09	3.81E-09
1.54E-09	1.07E-09	1.22E-09	1.70E-09	6.81E-10	9.65E-10	1.37E-08	5.01E-09	3.70E-09
1.69E-09	1.17E-09	1.18E-09	1.98E-09	9.96E-10	1.09E-09	1.35E-08	5.09E-09	4.11E-09
1.44E-09	1.16E-09	9.76E-10	1.79E-09	7.74E-10	9.99E-10	1.38E-08	5.29E-09	3.92E-09
1.54E-09	1.07E-09	1.17E-09	1.92E-09	8.94E-10	9.10E-10	1.36E-08	4.95E-09	3.80E-09
1.87E-09	1.20E-09	1.28E-09	1.80E-09	8.37E-10	7.92E-10	1.35E-08	4.99E-09	3.65E-09
1.19E-09	8.80E-10	1.19E-09	1.81E-09	7.36E-10	1.25E-09	1.38E-08	5.41E-09	3.78E-09
1.56E-09	1.08E-09	1.24E-09	1.90E-09	8.36E-10	1.14E-09	1.34E-08	5.05E-09	3.74E-09
1.29E-09	1.01E-09	1.06E-09	1.97E-09	1.16E-09	1.11E-09	1.37E-08	5.05E-09	3.95E-09
1.70E-09	1.52E-09	1.42E-09	1.80E-09	7.99E-10	1.01E-09	1.38E-08	5.38E-09	3.60E-09
1.64E-09	9.98E-10	9.06E-10	1.93E-09	9.64E-10	1.23E-09	1.38E-08	5.41E-09	3.70E-09
1.54E-09	1.01E-09	1.15E-09	2.09E-09	1.02E-09	1.21E-09	1.36E-08	5.18E-09	3.65E-09
1.35E-09	9.71E-10	1.04E-09	1.91E-09	8.83E-10	1.04E-09	1.37E-08	5.40E-09	3.55E-09
1.52E-09	9.98E-10	9.73E-10	1.96E-09	9.42E-10	8.46E-10	1.40E-08	5.20E-09	3.56E-09
1.63E-09	1.18E-09	1.40E-09	2.01E-09	1.04E-09	1.15E-09	1.35E-08	5.04E-09	3.76E-09
1.48E-09	9.47E-10	9.59E-10	2.08E-09	1.15E-09	8.86E-10	1.35E-08	5.08E-09	3.77E-09
1.38E-09	1.39E-09	8.92E-10	1.98E-09	1.06E-09	7.95E-10	1.37E-08	5.40E-09	3.66E-09
1.50E-09	1.18E-09	1.38E-09	2.05E-09	9.72E-10	1.10E-09	1.37E-08	5.46E-09	3.80E-09

1.85E-09	1.40E-09	1.40E-09	1.73E-09	7.77E-10	9.04E-10	1.34E-08	5.10E-09	3.96E-09
1.55E-09	1.38E-09	1.02E-09	2.18E-09	8.49E-10	1.04E-09	1.34E-08	4.79E-09	3.94E-09
1.75E-09	1.58E-09	9.44E-10	2.14E-09	1.15E-09	1.07E-09	1.40E-08	5.27E-09	3.57E-09
1.38E-09	1.13E-09	9.16E-10	2.24E-09	8.18E-10	8.09E-10	1.38E-08	5.19E-09	3.58E-09
1.68E-09	1.07E-09	1.10E-09	1.97E-09	8.01E-10	1.43E-09	1.37E-08	5.18E-09	3.62E-09
1.31E-09	8.69E-10	9.66E-10	2.23E-09	1.04E-09	1.24E-09	1.34E-08	5.08E-09	3.94E-09
1.67E-09	1.39E-09	1.36E-09	2.08E-09	1.07E-09	1.06E-09	1.36E-08	4.95E-09	3.55E-09
1.55E-09	1.24E-09	1.18E-09	1.89E-09	1.04E-09	1.01E-09	1.35E-08	5.09E-09	3.75E-09
1.25E-09	9.55E-10	1.08E-09	2.68E-09	1.22E-09	1.07E-09	1.34E-08	5.15E-09	3.66E-09
1.36E-09	9.56E-10	8.66E-10	2.00E-09	1.08E-09	9.89E-10	1.35E-08	5.30E-09	3.53E-09
1.57E-09	1.27E-09	1.39E-09	1.78E-09	1.11E-09	1.23E-09	1.36E-08	5.23E-09	3.53E-09
1.27E-09	1.02E-09	1.01E-09	1.81E-09	7.81E-10	8.33E-10	1.37E-08	5.33E-09	3.61E-09
1.48E-09	1.10E-09	1.16E-09	1.87E-09	7.02E-10	9.99E-10	1.37E-08	5.72E-09	3.67E-09
1.41E-09	1.05E-09	1.23E-09	2.05E-09	9.73E-10	9.56E-10	1.38E-08	5.01E-09	3.48E-09
1.47E-09	1.04E-09	1.00E-09	1.88E-09	9.72E-10	9.05E-10	1.35E-08	5.35E-09	3.57E-09
1.48E-09	1.31E-09	1.29E-09	2.04E-09	9.60E-10	9.87E-10	1.35E-08	5.07E-09	3.81E-09
1.49E-09	1.21E-09	1.30E-09	1.83E-09	7.62E-10	1.01E-09	1.37E-08	5.18E-09	3.99E-09
1.66E-09	1.46E-09	1.06E-09	2.14E-09	1.03E-09	1.20E-09	1.36E-08	5.17E-09	3.93E-09
1.44E-09	1.06E-09	1.47E-09	1.95E-09	7.13E-10	1.36E-09	1.36E-08	5.19E-09	3.61E-09
1.55E-09	1.01E-09	9.30E-10	2.04E-09	8.53E-10	9.68E-10	1.36E-08	5.42E-09	3.79E-09
1.98E-09	1.73E-09	1.57E-09	2.14E-09	1.16E-09	1.01E-09	1.36E-08	4.97E-09	3.77E-09
1.53E-09	1.27E-09	9.81E-10	1.93E-09	9.29E-10	1.09E-09	1.34E-08	4.95E-09	3.31E-09
1.40E-09	1.02E-09	9.37E-10	1.99E-09	8.05E-10	9.78E-10	1.36E-08	5.37E-09	3.73E-09
1.32E-09	1.32E-09	1.12E-09	1.98E-09	9.00E-10	1.00E-09	1.36E-08	5.44E-09	3.68E-09
1.25E-09	1.00E-09	1.32E-09	1.97E-09	1.17E-09	1.15E-09	1.35E-08	5.20E-09	3.71E-09
1.48E-09	8.50E-10	7.95E-10	1.77E-09	8.17E-10	1.01E-09	1.35E-08	4.97E-09	3.53E-09
1.35E-09	8.49E-10	9.31E-10	2.52E-09	9.00E-10	8.67E-10	1.36E-08	5.03E-09	3.62E-09
1.56E-09	1.09E-09	1.01E-09	1.78E-09	8.76E-10	8.78E-10	1.36E-08	4.90E-09	3.52E-09
1.59E-09	1.37E-09	1.51E-09	1.88E-09	7.69E-10	7.81E-10	1.36E-08	5.02E-09	3.43E-09
1.87E-09	1.36E-09	1.24E-09	2.13E-09	1.23E-09	6.05E-10	1.37E-08	5.26E-09	3.60E-09
1.48E-09	1.12E-09	1.32E-09	2.09E-09	1.12E-09	9.83E-10	1.34E-08	4.99E-09	3.64E-09
1.55E-09	9.41E-10	1.17E-09	2.15E-09	1.01E-09	1.08E-09	1.36E-08	5.12E-09	3.71E-09
1.62E-09	1.22E-09	1.36E-09	1.95E-09	9.02E-10	1.18E-09	1.37E-08	5.19E-09	3.79E-09
1.81E-09	1.24E-09	1.48E-09	1.90E-09	8.76E-10	1.19E-09	1.34E-08	5.24E-09	3.84E-09
1.32E-09	1.12E-09	1.15E-09	2.10E-09	1.09E-09	1.20E-09	1.37E-08	5.14E-09	3.86E-09
1.39E-09	9.33E-10	1.14E-09	1.98E-09	8.28E-10	1.04E-09	1.36E-08	5.30E-09	3.93E-09
1.41E-09	1.27E-09	1.08E-09	1.96E-09	1.14E-09	1.23E-09	1.41E-08	5.42E-09	3.66E-09
1.36E-09	1.31E-09	1.07E-09	2.17E-09	1.27E-09	9.31E-10	1.38E-08	5.26E-09	3.44E-09
1.39E-09	1.31E-09	1.22E-09	2.12E-09	1.02E-09	1.27E-09	1.34E-08	4.86E-09	3.78E-09
1.44E-09	1.10E-09	1.16E-09	2.21E-09	1.17E-09	1.12E-09	1.38E-08	5.25E-09	3.49E-09
1.85E-09	1.37E-09	9.97E-10	1.75E-09	7.11E-10	8.69E-10	1.36E-08	5.00E-09	3.58E-09
1.42E-09	1.17E-09	1.19E-09	2.26E-09	7.88E-10	7.71E-10	1.39E-08	5.24E-09	3.53E-09
1.50E-09	1.03E-09	1.04E-09	2.07E-09	1.33E-09	1.05E-09	1.38E-08	5.16E-09	3.58E-09
1.58E-09	1.28E-09	1.11E-09	1.87E-09	1.24E-09	1.18E-09	1.37E-08	5.35E-09	3.77E-09
1.46E-09	1.33E-09	1.33E-09	1.88E-09	1.18E-09	8.28E-10	1.38E-08	5.58E-09	3.65E-09
1.50E-09	1.05E-09	1.06E-09	2.01E-09	8.49E-10	1.34E-09	1.36E-08	5.51E-09	3.91E-09
1.33E-09	1.19E-09	1.05E-09	2.17E-09	8.97E-10	1.08E-09	1.36E-08	5.18E-09	3.77E-09
1.52E-09	1.20E-09	1.11E-09	2.14E-09	8.88E-10	8.81E-10	1.38E-08	5.41E-09	3.88E-09
1.62E-09	1.17E-09	1.08E-09	1.70E-09	5.73E-10	1.19E-09	1.38E-08	5.24E-09	3.45E-09
1.38E-09	1.05E-09	9.95E-10	1.90E-09	1.06E-09	9.49E-10	1.36E-08	5.00E-09	3.75E-09

1.40E-09	1.06E-09	1.01E-09	2.20E-09	1.06E-09	9.68E-10	1.36E-08	5.16E-09	3.65E-09
1.21E-09	1.04E-09	1.04E-09	1.86E-09	1.12E-09	1.03E-09	1.34E-08	4.78E-09	3.67E-09
1.41E-09	9.80E-10	1.03E-09	2.26E-09	1.06E-09	8.51E-10	1.33E-08	4.74E-09	3.80E-09
1.45E-09	1.10E-09	1.10E-09	2.17E-09	7.60E-10	1.05E-09	1.38E-08	5.27E-09	3.67E-09
1.35E-09	1.29E-09	1.13E-09	2.12E-09	1.10E-09	1.00E-09	1.38E-08	5.05E-09	3.95E-09
1.56E-09	1.17E-09	1.13E-09	1.81E-09	8.05E-10	1.34E-09	1.37E-08	5.25E-09	3.89E-09
1.37E-09	9.58E-10	1.02E-09	2.43E-09	8.65E-10	9.49E-10	1.36E-08	5.25E-09	3.65E-09
1.42E-09	1.14E-09	1.45E-09	1.93E-09	6.23E-10	9.02E-10	1.38E-08	5.43E-09	3.69E-09
1.64E-09	1.03E-09	9.88E-10	2.16E-09	1.08E-09	7.78E-10	1.37E-08	5.29E-09	3.56E-09
1.32E-09	1.02E-09	8.97E-10	1.94E-09	1.08E-09	9.17E-10	1.38E-08	5.31E-09	3.92E-09
1.09E-09	9.25E-10	9.16E-10	2.19E-09	9.92E-10	7.75E-10	1.34E-08	5.32E-09	3.95E-09
1.85E-09	1.25E-09	1.40E-09	2.08E-09	7.54E-10	1.11E-09	1.36E-08	5.11E-09	4.00E-09
1.52E-09	1.51E-09	1.05E-09	1.87E-09	1.21E-09	1.31E-09	1.35E-08	5.02E-09	3.44E-09
1.61E-09	1.16E-09	1.17E-09	2.02E-09	8.98E-10	1.05E-09	1.38E-08	5.18E-09	3.57E-09
1.39E-09	1.24E-09	1.16E-09	2.21E-09	1.18E-09	1.06E-09	1.36E-08	4.90E-09	3.66E-09
1.32E-09	9.65E-10	1.13E-09	1.91E-09	9.53E-10	9.86E-10	1.36E-08	5.16E-09	4.10E-09
1.82E-09	1.14E-09	1.16E-09	1.82E-09	1.30E-09	1.26E-09	1.39E-08	5.31E-09	3.67E-09
1.50E-09	1.02E-09	1.46E-09	2.04E-09	7.90E-10	1.05E-09	1.40E-08	5.19E-09	3.64E-09
1.49E-09	1.10E-09	1.18E-09	2.21E-09	8.17E-10	1.16E-09	1.40E-08	5.13E-09	3.76E-09
1.48E-09	1.26E-09	1.13E-09	2.44E-09	1.08E-09	1.15E-09	1.39E-08	5.21E-09	3.65E-09
1.19E-09	9.25E-10	9.34E-10	2.15E-09	1.15E-09	9.40E-10	1.36E-08	5.07E-09	3.46E-09
1.69E-09	1.38E-09	8.74E-10	1.74E-09	8.66E-10	1.21E-09	1.40E-08	5.55E-09	3.60E-09
1.21E-09	1.11E-09	1.09E-09	1.97E-09	1.12E-09	1.02E-09	1.34E-08	4.85E-09	3.70E-09
1.50E-09	1.05E-09	1.06E-09	2.03E-09	9.65E-10	9.80E-10	1.36E-08	5.10E-09	3.54E-09
1.96E-09	1.41E-09	1.55E-09	2.17E-09	1.04E-09	1.39E-09	1.38E-08	5.30E-09	3.92E-09
1.57E-09	1.17E-09	1.10E-09	2.36E-09	8.73E-10	8.09E-10	1.33E-08	5.01E-09	3.92E-09
1.49E-09	1.22E-09	1.29E-09	1.81E-09	1.04E-09	8.57E-10	1.37E-08	4.95E-09	3.81E-09
1.44E-09	1.42E-09	1.31E-09	1.64E-09	8.07E-10	9.82E-10	1.37E-08	5.44E-09	3.73E-09
1.44E-09	1.09E-09	1.12E-09	2.06E-09	7.73E-10	9.22E-10	1.34E-08	5.00E-09	3.60E-09
1.34E-09	1.15E-09	1.23E-09	1.84E-09	1.07E-09	1.06E-09	1.36E-08	4.97E-09	3.57E-09
1.73E-09	1.06E-09	1.10E-09	1.95E-09	7.99E-10	1.03E-09	1.34E-08	5.10E-09	3.69E-09
1.57E-09	1.16E-09	1.48E-09	2.37E-09	1.13E-09	1.60E-09	1.37E-08	5.13E-09	3.79E-09
1.34E-09	1.07E-09	9.40E-10	2.06E-09	1.05E-09	1.03E-09	1.37E-08	5.18E-09	3.85E-09
1.17E-09	1.35E-09	1.11E-09	1.71E-09	5.93E-10	1.13E-09	1.35E-08	4.95E-09	3.78E-09
1.56E-09	1.08E-09	1.20E-09	2.30E-09	1.40E-09	1.11E-09	1.35E-08	5.21E-09	3.49E-09
1.48E-09	1.02E-09	9.56E-10	2.26E-09	9.32E-10	1.02E-09	1.37E-08	5.40E-09	3.63E-09
1.37E-09	1.24E-09	1.24E-09	1.92E-09	9.09E-10	1.14E-09	1.38E-08	5.25E-09	3.72E-09
1.30E-09	9.88E-10	1.15E-09	1.82E-09	9.92E-10	9.04E-10	1.33E-08	4.90E-09	3.80E-09
1.43E-09	1.06E-09	1.02E-09	1.80E-09	6.69E-10	8.66E-10	1.38E-08	5.39E-09	3.82E-09
1.41E-09	1.01E-09	1.49E-09	2.02E-09	8.09E-10	9.82E-10	1.37E-08	5.25E-09	3.59E-09
1.40E-09	9.79E-10	1.26E-09	1.63E-09	8.97E-10	1.15E-09	1.36E-08	5.10E-09	3.45E-09
1.63E-09	1.60E-09	9.88E-10	1.87E-09	8.24E-10	1.20E-09	1.36E-08	5.32E-09	3.96E-09
1.32E-09	1.36E-09	1.15E-09	2.11E-09	1.08E-09	1.17E-09	1.35E-08	5.06E-09	4.13E-09
1.35E-09	9.54E-10	1.00E-09	2.11E-09	9.83E-10	1.11E-09	1.36E-08	5.17E-09	3.79E-09
1.44E-09	1.12E-09	1.04E-09	2.01E-09	1.10E-09	9.66E-10	1.38E-08	5.18E-09	3.75E-09
1.38E-09	1.29E-09	1.18E-09	1.97E-09	8.89E-10	9.35E-10	1.38E-08	5.19E-09	4.19E-09
1.74E-09	1.48E-09	1.32E-09	1.81E-09	9.61E-10	1.11E-09	1.34E-08	4.77E-09	3.78E-09
1.29E-09	9.48E-10	1.11E-09	2.18E-09	1.04E-09	6.55E-10	1.35E-08	5.04E-09	3.75E-09
1.61E-09	1.28E-09	1.10E-09	2.18E-09	9.24E-10	8.48E-10	1.35E-08	5.57E-09	3.61E-09
1.50E-09	1.10E-09	1.10E-09	2.21E-09	9.97E-10	1.11E-09	1.35E-08	4.88E-09	3.76E-09

1.26E-09	8.40E-10	9.66E-10	2.30E-09	1.13E-09	1.04E-09	1.35E-08	5.16E-09	3.88E-09
1.99E-09	1.21E-09	1.49E-09	1.87E-09	1.04E-09	9.00E-10	1.37E-08	5.15E-09	3.38E-09
1.67E-09	1.17E-09	1.70E-09	2.22E-09	1.38E-09	8.21E-10	1.38E-08	5.35E-09	3.81E-09
1.60E-09	1.19E-09	1.08E-09	1.86E-09	8.70E-10	8.55E-10	1.34E-08	4.98E-09	3.74E-09
1.68E-09	1.01E-09	1.19E-09	1.75E-09	7.63E-10	1.06E-09	1.34E-08	4.98E-09	3.83E-09
1.51E-09	1.04E-09	1.15E-09	1.93E-09	8.21E-10	1.26E-09	1.41E-08	5.58E-09	3.46E-09
1.24E-09	1.14E-09	1.03E-09	1.87E-09	1.15E-09	9.47E-10	1.40E-08	5.50E-09	3.39E-09
1.31E-09	1.31E-09	1.17E-09	2.01E-09	8.57E-10	1.09E-09	1.37E-08	5.29E-09	3.38E-09
1.46E-09	1.19E-09	1.19E-09	2.27E-09	9.63E-10	1.02E-09	1.34E-08	4.95E-09	3.59E-09
1.67E-09	1.58E-09	1.11E-09	1.72E-09	7.69E-10	1.09E-09	1.35E-08	5.09E-09	3.51E-09
1.29E-09	1.05E-09	1.07E-09	2.12E-09	9.83E-10	1.07E-09	1.36E-08	5.06E-09	3.67E-09
1.38E-09	1.24E-09	8.82E-10	1.96E-09	1.11E-09	1.15E-09	1.37E-08	5.22E-09	3.59E-09
1.13E-09	7.96E-10	9.65E-10	1.94E-09	8.53E-10	1.16E-09	1.35E-08	5.18E-09	3.59E-09
1.59E-09	1.00E-09	1.22E-09	2.07E-09	9.27E-10	1.48E-09	1.36E-08	5.33E-09	3.60E-09
1.58E-09	1.21E-09	1.11E-09	1.87E-09	1.01E-09	1.21E-09	1.38E-08	5.78E-09	3.70E-09
1.35E-09	1.13E-09	1.14E-09	1.99E-09	9.17E-10	9.02E-10	1.38E-08	5.25E-09	3.82E-09
1.25E-09	1.12E-09	9.86E-10	2.09E-09	9.42E-10	1.06E-09	1.38E-08	5.31E-09	3.86E-09
1.34E-09	1.41E-09	9.69E-10	2.00E-09	8.86E-10	1.04E-09	1.39E-08	5.24E-09	3.86E-09
1.38E-09	9.35E-10	1.09E-09	1.99E-09	9.08E-10	8.75E-10	1.40E-08	5.29E-09	4.08E-09
1.42E-09	1.15E-09	1.05E-09	1.99E-09	1.01E-09	9.54E-10	1.36E-08	5.17E-09	3.74E-09
1.07E-09	7.57E-10	9.88E-10	2.09E-09	8.60E-10	1.10E-09	1.35E-08	5.17E-09	3.72E-09
1.38E-09	1.00E-09	8.21E-10	1.82E-09	1.17E-09	1.04E-09	1.37E-08	5.17E-09	3.70E-09
1.46E-09	1.07E-09	1.40E-09	2.07E-09	1.06E-09	1.11E-09	1.37E-08	5.52E-09	3.77E-09
1.71E-09	1.23E-09	1.23E-09	2.30E-09	9.42E-10	1.27E-09	1.37E-08	4.84E-09	3.77E-09
1.29E-09	1.24E-09	1.22E-09	2.03E-09	1.17E-09	1.21E-09	1.36E-08	4.85E-09	3.69E-09
1.83E-09	1.45E-09	1.30E-09	1.88E-09	8.37E-10	1.13E-09	1.37E-08	5.14E-09	3.82E-09
1.25E-09	7.95E-10	8.11E-10	1.94E-09	1.00E-09	9.26E-10	1.36E-08	4.96E-09	3.50E-09
1.51E-09	1.07E-09	1.10E-09	1.94E-09	9.40E-10	7.41E-10	1.37E-08	5.07E-09	3.54E-09
1.72E-09	1.01E-09	1.12E-09	2.01E-09	8.06E-10	1.12E-09	1.38E-08	5.10E-09	3.48E-09
1.39E-09	1.19E-09	9.71E-10	2.10E-09	9.85E-10	7.56E-10	1.36E-08	5.44E-09	4.04E-09
1.22E-09	1.30E-09	8.43E-10	2.16E-09	8.86E-10	1.09E-09	1.36E-08	5.19E-09	3.70E-09
1.25E-09	1.10E-09	9.23E-10	2.24E-09	1.18E-09	8.58E-10	1.36E-08	5.18E-09	3.78E-09
1.55E-09	1.34E-09	1.64E-09	2.06E-09	1.17E-09	8.86E-10	1.37E-08	5.23E-09	3.71E-09
1.20E-09	1.09E-09	1.39E-09	2.33E-09	1.15E-09	1.19E-09	1.37E-08	5.57E-09	3.76E-09
1.17E-09	1.12E-09	1.03E-09	2.11E-09	1.29E-09	1.09E-09	1.36E-08	5.04E-09	3.72E-09
1.39E-09	1.08E-09	1.10E-09	2.05E-09	8.76E-10	1.11E-09	1.35E-08	4.83E-09	3.90E-09
1.29E-09	1.02E-09	1.01E-09	1.96E-09	7.25E-10	9.16E-10	1.36E-08	5.07E-09	3.62E-09
1.50E-09	1.14E-09	1.15E-09	2.29E-09	1.05E-09	1.00E-09	1.37E-08	5.10E-09	3.62E-09
1.58E-09	1.13E-09	1.09E-09	2.08E-09	1.44E-09	1.23E-09	1.36E-08	5.06E-09	3.42E-09
1.63E-09	1.16E-09	1.34E-09	1.94E-09	9.82E-10	1.22E-09	1.38E-08	5.33E-09	4.01E-09
1.78E-09	1.43E-09	1.56E-09	1.81E-09	8.47E-10	1.33E-09	1.33E-08	4.81E-09	3.66E-09
1.49E-09	1.13E-09	1.07E-09	2.01E-09	9.69E-10	9.44E-10	1.36E-08	5.09E-09	3.61E-09
1.52E-09	1.08E-09	1.14E-09	2.18E-09	9.20E-10	9.93E-10	1.36E-08	4.78E-09	4.08E-09
1.80E-09	1.34E-09	1.26E-09	1.93E-09	7.13E-10	1.13E-09	1.36E-08	5.11E-09	3.69E-09
2.14E-09	1.67E-09	1.40E-09	1.72E-09	8.83E-10	1.25E-09	1.34E-08	5.17E-09	3.45E-09
1.87E-09	1.46E-09	1.45E-09	1.90E-09	1.13E-09	1.41E-09	1.38E-08	5.10E-09	3.99E-09
1.99E-09	1.41E-09	1.45E-09	2.02E-09	8.13E-10	1.00E-09	1.36E-08	4.89E-09	3.64E-09
1.60E-09	8.96E-10	9.14E-10	1.98E-09	8.63E-10	8.18E-10	1.38E-08	5.14E-09	3.79E-09
1.37E-09	1.09E-09	9.42E-10	2.07E-09	1.18E-09	9.92E-10	1.38E-08	5.33E-09	3.72E-09
1.32E-09	1.08E-09	1.20E-09	1.92E-09	1.14E-09	1.08E-09	1.36E-08	5.03E-09	3.71E-09

1.64E-09	1.33E-09	1.26E-09	2.04E-09	9.73E-10	1.05E-09	1.36E-08	5.09E-09	3.60E-09
1.52E-09	1.12E-09	1.20E-09	2.01E-09	9.42E-10	1.07E-09	1.36E-08	5.22E-09	3.38E-09
1.62E-09	1.23E-09	1.16E-09	2.08E-09	8.85E-10	9.59E-10	1.37E-08	5.44E-09	3.59E-09
1.52E-09	1.08E-09	1.03E-09	1.77E-09	1.03E-09	1.24E-09	1.36E-08	5.10E-09	3.42E-09
1.36E-09	8.18E-10	9.03E-10	2.25E-09	1.00E-09	9.30E-10	1.36E-08	4.91E-09	3.64E-09
1.25E-09	1.04E-09	1.01E-09	2.40E-09	8.61E-10	1.06E-09	1.37E-08	5.11E-09	3.55E-09
1.51E-09	1.08E-09	8.67E-10	1.89E-09	9.72E-10	1.00E-09	1.37E-08	5.50E-09	3.50E-09
1.41E-09	1.49E-09	1.06E-09	1.82E-09	7.29E-10	1.51E-09	1.38E-08	5.71E-09	3.73E-09
1.48E-09	1.12E-09	1.04E-09	1.66E-09	8.69E-10	1.06E-09	1.38E-08	5.72E-09	3.89E-09
1.29E-09	9.19E-10	9.36E-10	1.85E-09	6.87E-10	1.13E-09	1.39E-08	5.47E-09	3.74E-09
1.31E-09	1.22E-09	1.30E-09	1.87E-09	7.96E-10	9.17E-10	1.36E-08	5.10E-09	4.36E-09
1.64E-09	1.16E-09	1.10E-09	2.17E-09	9.94E-10	9.24E-10	1.35E-08	5.26E-09	3.77E-09
1.49E-09	1.01E-09	1.28E-09	2.15E-09	8.12E-10	1.25E-09	1.37E-08	5.01E-09	3.57E-09
1.42E-09	1.01E-09	8.58E-10	1.70E-09	1.13E-09	1.21E-09	1.36E-08	5.14E-09	3.55E-09
1.36E-09	1.12E-09	1.08E-09	2.08E-09	9.72E-10	9.72E-10	1.35E-08	4.63E-09	3.90E-09
1.07E-09	6.27E-10	9.87E-10	2.18E-09	1.17E-09	1.21E-09	1.37E-08	5.21E-09	3.82E-09
1.52E-09	1.21E-09	9.24E-10	2.37E-09	9.64E-10	1.24E-09	1.37E-08	5.12E-09	3.77E-09
1.53E-09	1.47E-09	1.18E-09	2.23E-09	1.31E-09	1.30E-09	1.37E-08	5.34E-09	3.89E-09
1.38E-09	9.50E-10	1.13E-09	2.10E-09	1.10E-09	8.90E-10	1.35E-08	5.08E-09	3.91E-09
1.24E-09	1.06E-09	7.51E-10	2.22E-09	1.20E-09	1.23E-09	1.37E-08	5.25E-09	3.45E-09
1.31E-09	1.46E-09	1.01E-09	2.08E-09	1.08E-09	9.55E-10	1.37E-08	5.15E-09	3.57E-09
1.10E-09	8.91E-10	9.29E-10	2.16E-09	8.05E-10	6.82E-10	1.36E-08	5.36E-09	3.66E-09
1.36E-09	9.48E-10	1.10E-09	2.07E-09	1.08E-09	1.46E-09	1.37E-08	5.31E-09	3.41E-09
1.46E-09	1.22E-09	1.27E-09	1.93E-09	9.44E-10	1.19E-09	1.37E-08	4.97E-09	3.71E-09
1.52E-09	9.42E-10	1.03E-09	2.14E-09	9.38E-10	1.22E-09	1.35E-08	4.99E-09	3.57E-09
1.50E-09	1.33E-09	1.09E-09	1.88E-09	1.09E-09	1.14E-09	1.33E-08	4.92E-09	3.62E-09
1.36E-09	8.75E-10	7.58E-10	2.04E-09	9.14E-10	1.24E-09	1.36E-08	5.06E-09	4.00E-09
1.45E-09	1.41E-09	9.66E-10	2.21E-09	1.15E-09	9.77E-10	1.34E-08	4.91E-09	3.80E-09
1.51E-09	1.41E-09	1.13E-09	2.05E-09	1.12E-09	1.05E-09	1.35E-08	4.97E-09	3.76E-09
1.30E-09	9.01E-10	1.10E-09	1.96E-09	1.09E-09	1.15E-09	1.34E-08	5.18E-09	3.61E-09
1.40E-09	1.11E-09	1.14E-09	2.02E-09	1.07E-09	1.28E-09	1.37E-08	5.15E-09	3.45E-09
1.56E-09	1.14E-09	9.62E-10	1.98E-09	7.22E-10	1.10E-09	1.38E-08	5.15E-09	3.80E-09
1.43E-09	1.34E-09	1.40E-09	1.93E-09	8.93E-10	1.04E-09	1.38E-08	5.29E-09	3.79E-09
1.49E-09	1.34E-09	1.37E-09	2.44E-09	1.23E-09	9.23E-10	1.36E-08	5.14E-09	3.97E-09
1.16E-09	9.54E-10	9.27E-10	2.27E-09	1.26E-09	1.00E-09	1.37E-08	4.92E-09	3.78E-09
1.28E-09	1.03E-09	1.30E-09	1.82E-09	7.79E-10	8.31E-10	1.37E-08	5.57E-09	3.91E-09
1.68E-09	1.04E-09	1.37E-09	2.07E-09	9.06E-10	1.22E-09	1.38E-08	4.97E-09	3.50E-09
1.46E-09	1.37E-09	1.28E-09	2.03E-09	7.78E-10	1.02E-09	1.36E-08	5.06E-09	3.93E-09
1.58E-09	1.24E-09	1.32E-09	1.88E-09	1.13E-09	1.24E-09	1.37E-08	5.19E-09	3.60E-09
1.30E-09	1.07E-09	1.12E-09	1.77E-09	6.51E-10	1.07E-09	1.38E-08	5.28E-09	4.00E-09
1.44E-09	8.78E-10	9.26E-10	2.11E-09	9.48E-10	7.49E-10	1.34E-08	4.90E-09	4.01E-09
1.33E-09	1.32E-09	1.19E-09	1.86E-09	1.24E-09	1.22E-09	1.36E-08	5.06E-09	3.77E-09
1.73E-09	1.08E-09	1.34E-09	1.86E-09	1.07E-09	1.20E-09	1.35E-08	5.25E-09	4.00E-09
1.30E-09	9.70E-10	9.52E-10	2.00E-09	9.27E-10	7.70E-10	1.36E-08	4.97E-09	3.97E-09